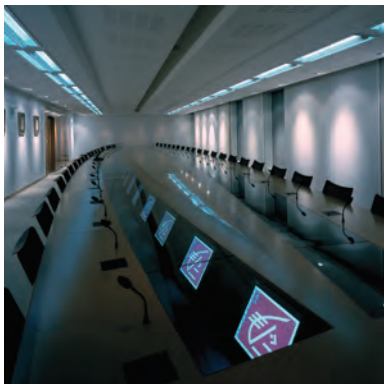
Energi Savr Node™

handheld programming guide



LUTRON®

This guide supports:

Energi Savr iPod/iPhone/iPad application version 6.0.X

Firmware 6.X and below for the following devices:
ESN with EcoSystem® version
ESN International with EcoSystem®
ESN DALI® version 6.X and below
0-10V ESN Domestic
0-10V ESN International
0-10V ESN Domestic with SoftSwitch®
0-10V ESN International with SoftSwitch®

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Getting Started

How to Use This Guide

This guide is divided into manageable sections which will allow you to easily walk through the process of setting up your Energi Savr Node™ units with a handheld programming device.

You will notice that this guide contains text and corresponding pictures/screen shots. Please note that applicable screen shots will appear directly parallel to the corresponding text.

In many areas we will also tell you to navigate to a particular screen. In those instances, the path to get there is defined as what you would click on from screen to screen.

Example:

Verify Wiring

Before we can go further in the commissioning process, we need to ensure that the lighting has been wired properly and all of the lights are able to respond to the system's commands.

Using the handheld device application, **navigate to the *Verify Wiring* screen**...
Home > *System Setup* > *Configure an ESN* (select an ESN and click on the green arrow) > *Verify Wiring*

How to Set Up the Router

Each WiFi enabled router brand and model has a unique configuration process. Please refer to individual router instructions for setting up a router for use with the ESN. Most router companies offer downloadable versions of their User Manual from their support website.

Suggested Router Settings for use with ESN

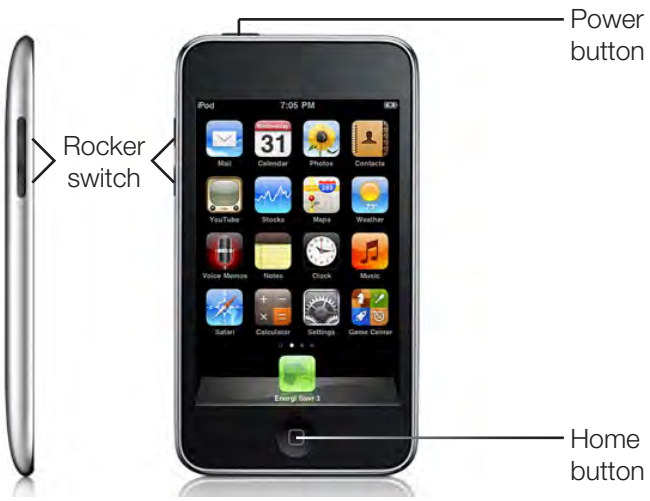
These settings are strongly recommended, but not required, to successfully connect to an ESN system.

Setting/Configuration	Suggested Setup
Router Name	EnergiSavr
Wireless Network Name (SSID)	EnergiSavr
SSID Broadcast	Enabled
Wireless Security Type	WPA2 Personal *
Wireless Security Password	*Choose your own, minimum 8 characters*
Internet connection	Disabled/Unplugged

***** We have found that improved connection reliability can be obtained by applying a WPA2 Personal password to the WiFi router connected to the ESN.

How to Use the Handheld Device

This short guide will help you understand the basics of using a handheld device in conjunction with the Energi Savr app. For more information on using an *Apple iPod touch*, *iPhone*, or *iPad* device, visit the *Apple* website (www.apple.com).



Basics

The handheld has two important buttons:

The *Power* button, is a slim button located on the top edge of the device.

The *Home* button, is a round button located on the lower-front face of the unit, below the screen and centered between the left and right sides.

Turn On/Wake Up the Device

Turn on the device by pressing and holding the *Power* button until the grey *Apple* logo appears. Allow some time for the device to boot up. You can turn off the device by holding the *Power* button until the red slider appears and instructs you on how to shut down the device.

If you don't use the device for a few minutes, it will go to sleep and shut down the screen for convenience. To wake it up, simply tap the *Home* button and slide the *Unlock* slider. The ESN app will keep the device from going to sleep, which will affect the battery life.

Charge the Device

If you need to charge the device, use the USB cable to attach the device to a USB port on a computer or to a compatible USB wall-charger.

Home Screen

The *Home* screen is the screen that you see after you wake the device up and unlock it. This screen consists of a series of application icons arranged in a 4 x 5 grid pattern on the screen. Note that the *Home* screen may consist of several pages of applications and may appear different from the image shown. Swipe your finger on the *Home* screen to the left or to the right to scroll side-to-side between these pages. You will notice some dots towards the bottom of the *Home* screen. These are used to indicate how many pages currently exist on the *Home* screen and which page you are currently viewing.

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Rearrange/Delete Applications

The *Home* screen application icons can be rearranged—simply press and hold one of the icons until all of the icons start to wiggle. You will notice that some of the icons have black X symbols on them; touching a black X will un-install that application from your device. While the icons are wiggling, they can be repositioned with respect to each other or placed onto different pages. Simply touch a wiggling application icon and slide it around to change its location. You can add and remove applications from the *Stationary Favorites* row at the bottom as well. You can even drag applications on top of other applications to create application folders that will group similar applications together. To exit the wiggling reorganization mode, just tap the *Home* button.

Pause Any Application

While using any application, you can quickly pause or end the application and return to the *Home* screen by tapping the *Home* button.

Launch Any Application

You can launch any application just by touching its corresponding icon.

Use Backgrounding to Multi-task

Version 4.0 and greater of an *Apple* handheld device operating system, or *iOS*, supports a feature in which more than one application can run at the same time. When you are using an application and then you press the *Home* button, the application will minimize and iOS will return you to the *Home* screen.

View currently running applications

To view a list of the applications that are currently running, double-tap the *Home* button; a small row will appear at the bottom of the screen. You can slide left and right to view the list of applications that are currently running on your device. To fully terminate an application in this list, press and hold the icon for that application until it starts wiggling. A red minus sign will appear in the corner of the application icon; touch this to fully end the application. Press the *Home* button to exit the wiggling mode.

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Wireless Networks

The Energi Savr setup application requires a connection to a wireless Ethernet network (WiFi network) to make changes to an Energi Savr Node™ system. The app must connect to the same network that the ESN or ESN Programming Interface is connected to. A connection to the Internet is not required.

Connect to a Router

To connect to a WiFi network, go to the *Home* screen and touch the *Settings* icon shown here. On the *Settings* screen, select the row titled ***WiFi***. From this screen the device will scan for all wireless networks within range and will present a list of these networks. Touch the network to which you would like to connect. If a password is required, use the keyboard to enter the network password when prompted.

The device may not have a valid connection until the WiFi connection strength indicator appears in the top left of the device. The indicator is shown below. Once you connect to a specific network, the device will remember that network and connect to it automatically in the future.

Forget a Network

If you would like the device to forget a specific wireless network, touch the blue arrow next to the network name in the list (on the right side) under *WiFi Settings*. On the next screen, touch the *Forget this Network* button that appears at the top. This is useful because the device will always attempt to connect to the strongest remembered network, which may not be the Energi Savr WiFi network.

The Energi Savr Application

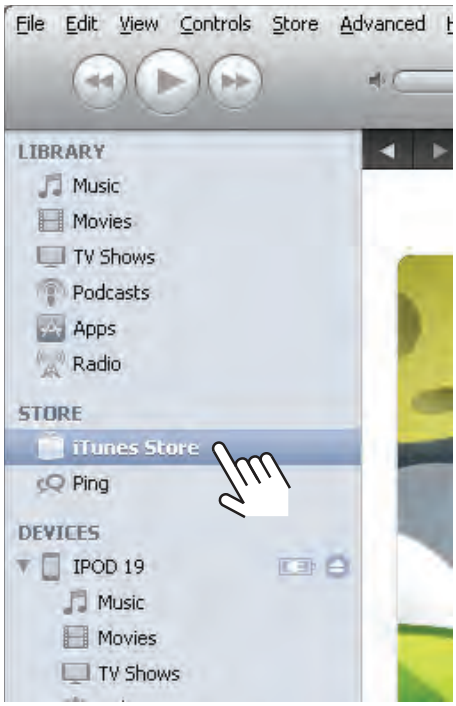
The following steps will walk you through how to update an application using the App Store on *iTunes*, and the App Store built into the handheld device.

Download and Install the Energi Savr app using the *iTunes* App Store

Required Items:

- PC or Mac with *iTunes* 10.0 or greater installed
- *iTouch* device: *iPod touch*, *iPad*, *iPhone*
- *iTouch* USB cord

1. Open *iTunes*.
2. Click on *iTunes Store* located on the left toolbar under *STORE*.
3. Click on the *Search Store* field in the top right of *iTunes*.
4. Type in “Energi Savr” and hit *Enter* on the keyboard.
5. Locate and download the Energi Savr application.
   a. There may be multiple versions available. It is recommended that you download the app titled, "Energi Savr", without a numeric value following.
   b. In order to download the application, a valid *Apple* profile must be used. *iTunes* will alert you with the available sign-in options when you try to download the application.
6. When the application has downloaded, it will appear under the *Apps* tab.
7. Sync your handheld device with *iTunes* to update.



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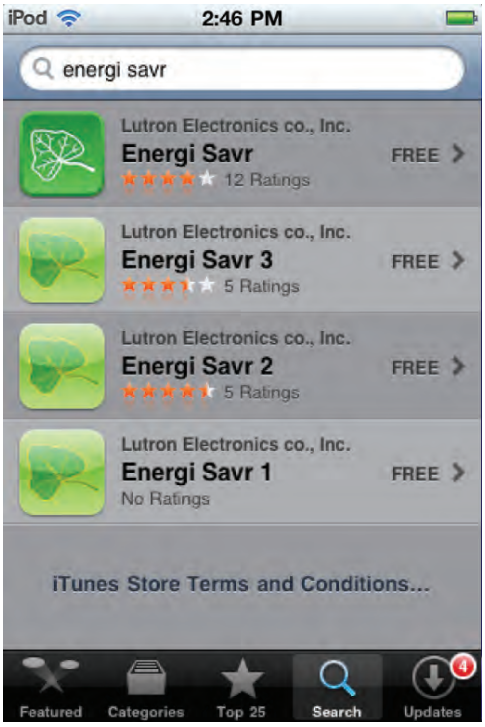
Install Energi Savr using iOS built-in App Store

Required Items:
- Handheld device

1. Turn on/wake up the handheld device.
2. Click on the icon titled "App Store".
3. Click on the *Search* tab on the bottom toolbar.
4. Search for “Energi Savr”.
5. Locate and download the Energi Savr application.
   a. There may be multiple versions available. It is recommended that you download the app titled, "Energi Savr", without a trailing version number. This is the current and most updated version that is also backwards compatible.
   b. In order to download the application, a valid *Apple* profile must be used. The operating system will alert you with the available sign-in options when you try to download the application.
6. When application has downloaded, it will appear on one of the *Home* screens of the handheld device.



ESN Firmware Version Support

The app titled “Energi Savr” (without a number suffix) supports all previous versions of the ESN hardware as well as the current version. Other versions of the app support older hardware and are provided on the *iTunes* store for legacy support.

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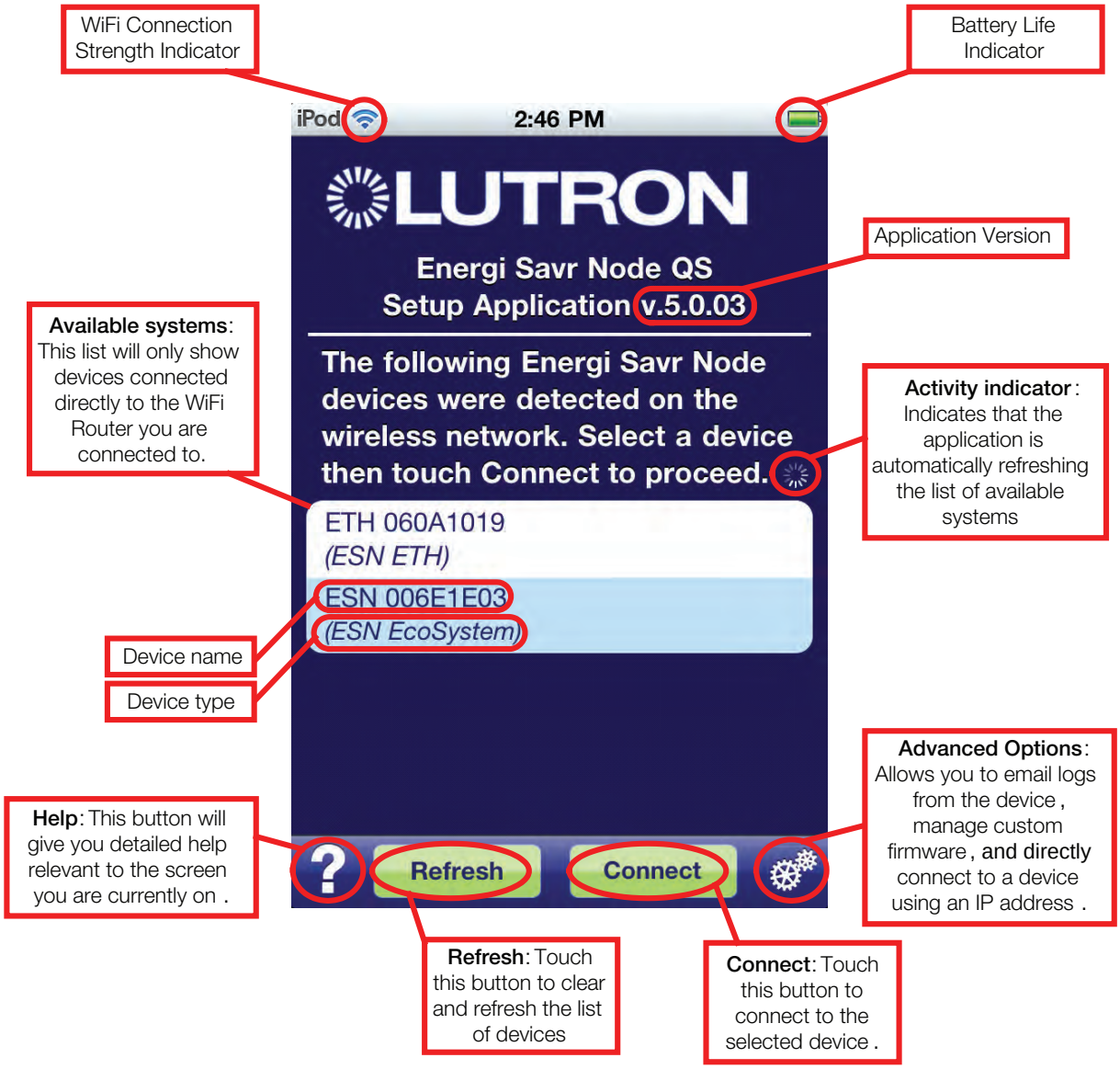
Introduction to the Energi Savr Interface

This section introduces you to three separate screens and the different visual components of those screens.

Interface Example 1:
Available Systems


WiFi Connection Strength Indicator
Battery Life Indicator
iPod
2:46 PM
LUTRON
Energi Savr Node QS
Setup Application v.5.0.03
Application Version
The following Energi Savr Node devices were detected on the wireless network. Select a device then touch Connect to proceed.
Available systems: This list will only show devices connected directly to the WiFi Router you are connected to.
Activity indicator: Indicates that the application is automatically refreshing the list of available systems
ETH 060A1019
(ESN ETH)
ESN 006E1E03
(ESN EcoSystem)
Device name
Device type
Help: This button will give you detailed help relevant to the screen you are currently on .
Refresh
Connect
Advanced Options: Allows you to email logs from the device , manage custom firmware , and directly connect to a device using an IP address .
Refresh: Touch this button to clear and refresh the list of devices
Connect: Touch this button to connect to the selected device .

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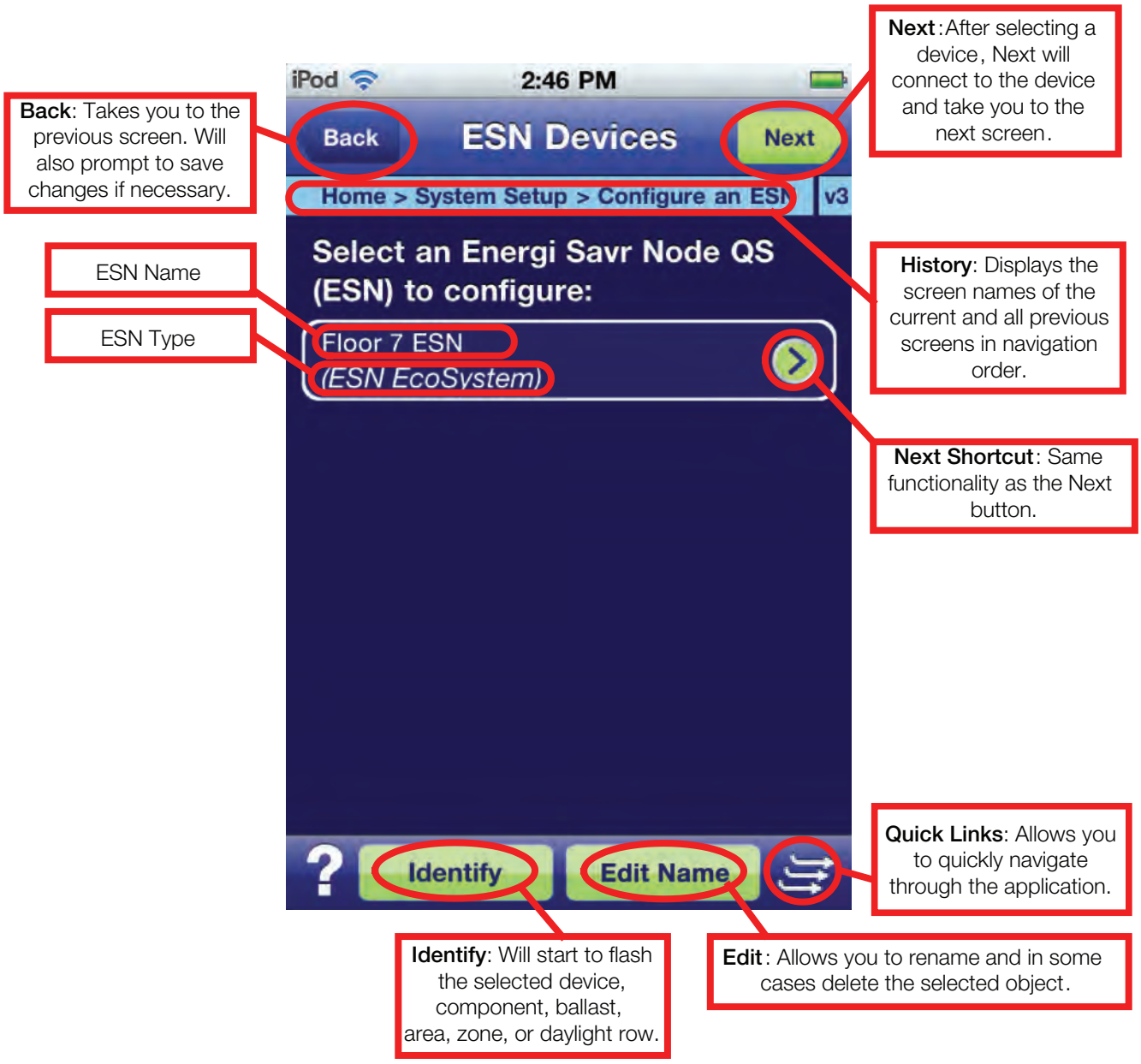
Interface Example 2:
Configure an ESN


iPod
2:46 PM
Back
ESN Devices
Next
Home > System Setup > Configure an ESN
v3
Select an Energi Savr Node QS (ESN) to configure:
Floor 7 ESN
(ESN EcoSystem)
?
Identify
Edit Name
Back: Takes you to the previous screen. Will also prompt to save changes if necessary.
Next: After selecting a device, Next will connect to the device and take you to the next screen.
ESN Name
ESN Type
History: Displays the screen names of the current and all previous screens in navigation order.
Next Shortcut: Same functionality as the Next button.
Quick Links: Allows you to quickly navigate through the application.
Identify: Will start to flash the selected device, component, ballast, area, zone, or daylight row.
Edit: Allows you to rename and in some cases delete the selected object.

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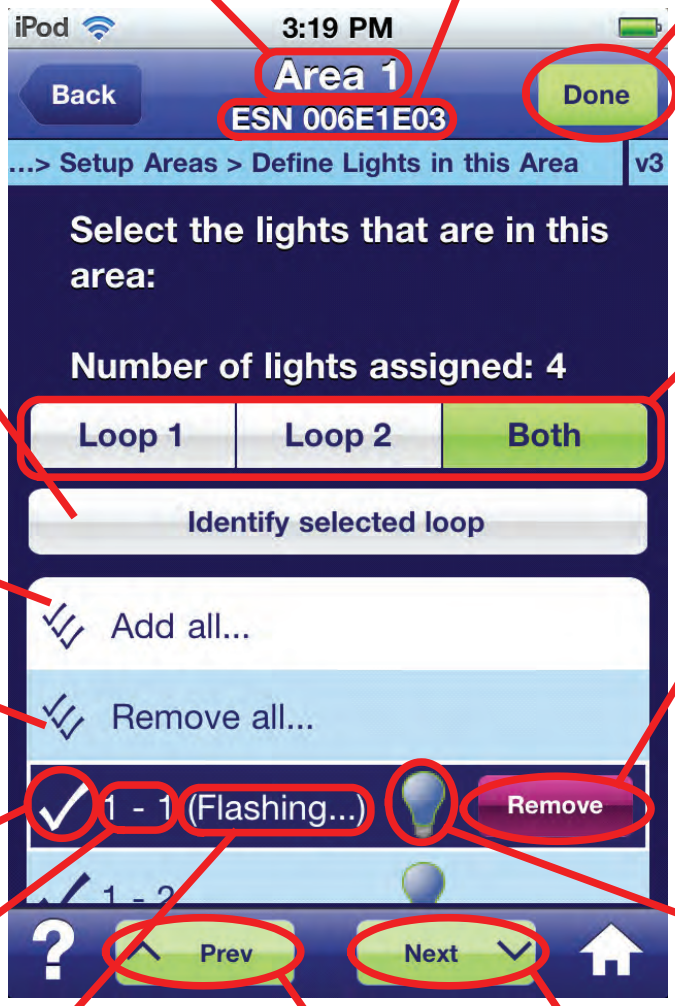
Interface Example 3:
Define Lights in this Area



Area Name

ESN Name

Done: Saves changes and takes you to the previous screen.

Identify: This button will identify all ballasts on the selected loop. Loop 1, Loop 2 or Both.

Filter Options: These tabs will filter the list of ballasts below for easier identification.

Add All: Adds all unassigned lights currently visible in the list to the area.

Remove All
Removes all lights currently assigned to the area.

Remove: removes the current ballast from the area. If not a member of the current area, an Add button will be shown.

Check: Indicates that the ballast is added to the area. A circle with a line through it indicates a ballast assigned to another area.

Ballast Type:
Dimming loads represented by :
Switching loads represented by :

Ballast Address: The address of the ballast this row represents. "Loop # - Address"

Indicates that this ballast is currently flashing.

Previous: Switches to the previous unassigned ballast. The new ballast will start flashing.

Next: Switches to the next unassigned ballast. The new ballast will start flashing. Holding Next will add the current ballast and then move to the next one.

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Quick Start Guide

Step 1:
Wire the Connections

1.1 Connect one end of the supplied Ethernet cable to an Energi Savr Node™ with EcoSystem® unit (QSN-1ECO-S, QSN-2ECO-S) or to an Energi Savr Node™ Programming Interface (QSE-CI-AP-D).
Note: If more than one QS link is present, these steps will need to be repeated for each QS link.

1.2 Connect the other end of the supplied Ethernet cable to one of the standard LAN ports on the wireless router. Do not plug the cable into the WAN (Internet) port.

1.3 Connect the supplied router power supply to the router and plug the power supply into a wall outlet. Verify that the wireless router is powered on.
Note: If the device does not connect automatically, you will need to re-establish wireless communications between the handheld device and the router using the device's WiFi connection screen.

Step 2:
Discover the System

2.1 Power-on the handheld device.

2.2 Verify that the handheld device has connected to the wireless router. You should see wireless signal strength indicator bars in the top-left corner of the main screen.
Note: This connection may take some time to be established. You should not proceed until the indicator bars appear.

2.3 Run the Energi Savr Node™ (ESN) setup application by touching the icon.

2.4 When the application loads, you should see the connected Energi Savr Node™ unit.

Step 3:
Set Up the System

Note: Follow these instructions *only* when setting up a system for the first time. For a system that is already operational and needs only minor adjustments, ballast addressing is *not* typically required; simply navigate to existing areas and modify the settings as needed.

3.1 Connect to the device (for help during any part of the set-up process, use the on-screen *Help* button)
- Select the desired Energi Savr Node™ unit and connect to it.
- When prompted, enter a password. You will need this password when connecting to the device to make configuration changes in the future.

3.2 Navigate to the configuration screen
- From the *Home* screen, navigate to *System Setup* > *Configure an ESN*. Select the desired ESN and touch *Next* to see the main configuration screen.

3.3 Verify wiring
- Navigate to the *Verify Wiring* screen and ensure that all ballasts/outputs are responding correctly to the system commands. See p23.

3.4 Verify/re-name connected devices
- Navigate to *Maintenance/Diagnostics* > *View/Edit Device Properties* and verify that all of the devices on the QS link appear in the list. See p80.
- Identify and re-name all connected devices from this screen for later reference.

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3.5 Update Firmware
- Navigate to *Maintenance/Diagnostics* > *Firmware Upgrade* > *Firmware Upgrade Devices*. See p86.
- Update the firmware of any devices as needed. Note that this step requires custom firmware imported to the handheld device using *iTunes*.

  Warning: Updating firmware is required *only* on new start-ups. If it is an existing job, confirm that a firmware update is necessary before beginning the process.

3.6 Associate wireless sensors and Pico® wireless controls to QSMs
- Associate each Pico® wireless control and each wireless occupancy, daylighting, and IR sensor to corresponding QSMs.
- If desired, name the daylighting, occupancy, and IR sensors for later reference. See p41, p47, p65.

3.7 Address ballasts
- If programming an Energi Savr Node™ with an EcoSystem® unit (QSN-2ECO-S, QSN-1ECO-S), address the ballasts by navigating to the *Address Ballasts* screen. See p25.

3.8 Define areas
- Using the *Setup Areas* screen, create new areas that correspond to the areas that you want to control in your space (e.g. hallway, office). See p28.

3.9 Set up Zones
- Within the *Setup Zones* screen, perform the following steps for each area that you created.
  - Navigate to the *Setup Zones/Define Lights* screen and create, rename, and delete zones as well as assign the desired lights. Other Energi Savr Node™ models (such as QSN-4S16-S and QSN-4T16-S) have zones that are pre-defined. See p30.
  - If desired, navigate to *Ballast Trim Settings* in order to set Low-End and High-End trim for the ballasts in this area.
  - If desired, navigate to the *Setup Daylighting* screen and assign daylighting sensors, define daylighting rows, and calibrate the daylighting settings. See p38.
  - If desired, navigate to the *Setup Occupancy* screen and assign occupancy sensors and specify the occupancy settings. See p46 and p47.

3.10 Program controls
- Return to the *Home* screen. Navigate to *System Setup* to view the various device programming options. See p22.
- Program any IR sensors, QS keypads, GRAFIK Eye® QS units, or other QS devices to control the Energi Savr Node™ unit lighting as desired using the *Program Devices* and *Program IR Sensors* screens. See p55.

3.11 Program dry contact inputs
- Program any configurable dry contact inputs on the Energi Savr Node™ units using the *Program ESN Inputs* screen. See p66.

Step 4:
Start Saving Energy with your Energi Savr Node™ System!

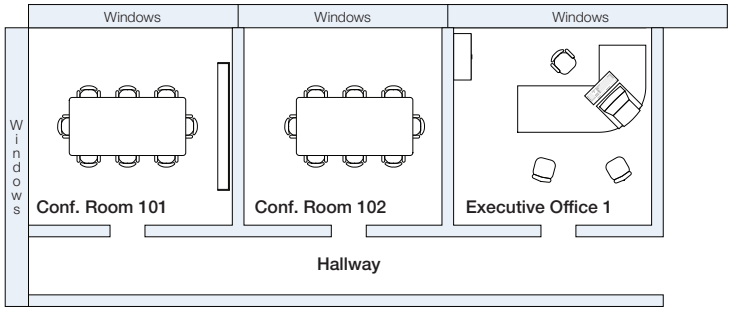
Lexicon

After-Hours

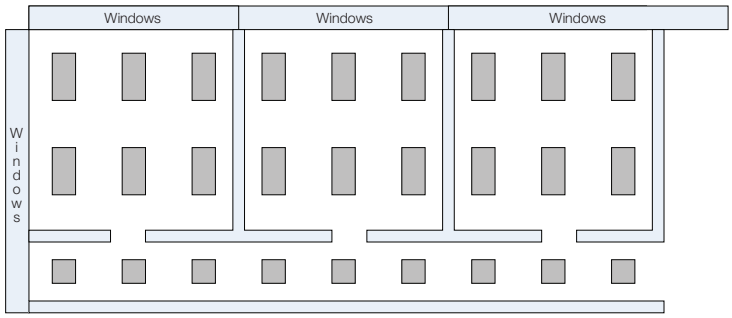
After-Hours is a feature that is similar to occupancy but without the use of occupancy sensors. Each area of an ESN can be individually configured to use the After-Hours feature. An external input (from a third party timeclock, for example) signals when After-Hours should begin and end. When After-Hours mode begins, the lights flash to alert any occupants in the area that the lights are going to turn off. If no users activate any wall controls within a short time after the lights flash, the area is deemed to be unoccupied and the lights turn off. If, however, an occupant touches a wall control button in the space, the lights stay on for a longer period of time before flashing and attempting to turn off again.

Area

An area represents a physical portion of the space and contains one or more ballasts that are considered to be “in that area”. Below is a sample floor plan that represents four areas.



After you create an area in the setup application, you need to define which ballasts exist in that area. The floor plan from above is pictured again below showing the lighting fixtures present in each area.



Ballast or Light

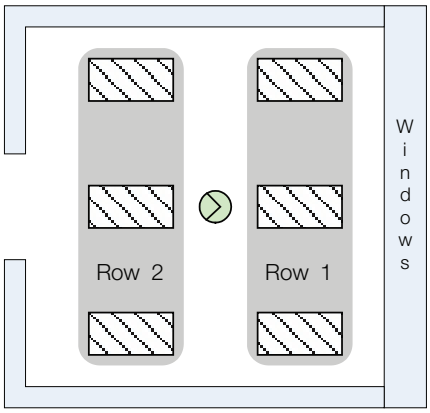
A ballast or light is simply an individual light (usually a single fixture) that can be controlled by an ESN. In 0-10 and Switching models of the ESN, a group of several ballasts/lights might be controlled as part of a single output on the ESN. However, other ESN models (such as DALI® and EcoSystem®) have digital control over individual ballasts. See the diagram provided under the definition of *Loop* for more details about this.

Daylighting

Daylighting is a feature of ESN systems that allows the electric light levels to react automatically in response to the amount of natural light that is entering the space. This is accomplished by using photo sensors to measure the lighting conditions and feed back information to the ESN so that the electric lighting can be increased or reduced accordingly. An important benefit of daylighting is that it reduces the amount of energy used by taking advantage of natural light conditions.

Daylighting Row

A daylighting row is a group of ballasts or zones that will react together in response to daylighting input from a photo sensor. In systems using digitally addressable ballasts (such as DALI® or EcoSystem®), individual ballasts can be added to different daylighting rows. In simpler output-based systems in which zones are pre-defined (such as 0-10 and Switching systems), zones are added to different daylighting rows. A daylighting row is not a zone; it is a separate type of group created for the purposes of daylighting. In a given area, ballasts may be grouped into one or more zones, and additionally, they may be grouped into one or more daylighting rows in a completely independent fashion. Daylighting rows that are defined as being closer to the windows in a space are given the ability to react more strongly to photo sensor input. Rows that are farther back from the window will react less strongly. This is because natural light has the greatest impact on the amount of light in the portion of the space that is closest to the window. Natural light has less of an impact as one moves farther from the windows. The diagram below explains how photo sensors are placed and how daylighting rows are defined in a typical space that is set up for daylighting.



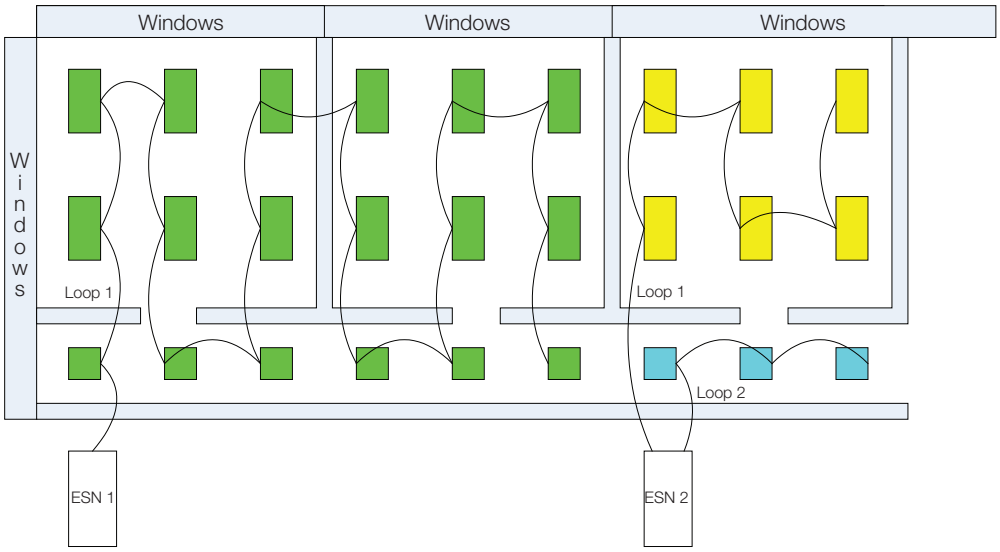
Each area in an ESN is automatically allocated four daylighting rows. The first row is defined as being closest to the window and the fourth row is defined as being farthest from the window. Ballasts can be associated with any row or rows (i.e., not all of the rows need to be utilized, as shown here). In this diagram, the photo sensor in between the two rows will measure the daylight coming from the window and will report this to the ESN controlling the ballasts in the area. The ESN will dim the lights in row 1 more strongly than the lights in row 2, since row 1 is closer to the window. The parameters for this behavior are calibrated during a stage of the commissioning process known as *Daylighting Setup*. During this stage, light level measurements are taken in the space and the handheld setup application guides the user through the process of setting up the daylighting behavior in each area.

Load Shedding

Load Shedding is a feature that allows you to configure a percentage of light-level reduction in each area of an ESN. Then, when a load-shedding input is received (via a contact closure input on the ESN), each area will reduce its current light level by the pre-determined percentage. For example, one area might be configured for 0% load shed. Such an area would never experience a reduction in light level when a load-shedding input is received. However, another area might be configured for 50% load shed. When a load-shedding input is received, this area would reduce its current light level by 50%. If the lights were at 40% intensity, they would drop to 20% intensity. The purpose of this feature is to save energy in a demand/response type of scenario.

Loop

A loop is a collection of digitally addressable ballasts (such as DALI® or EcoSystem® ballasts) that are wired together on the same low-voltage communications link. The diagram below shows an example floor plan with ESN devices and their respective loop wiring.

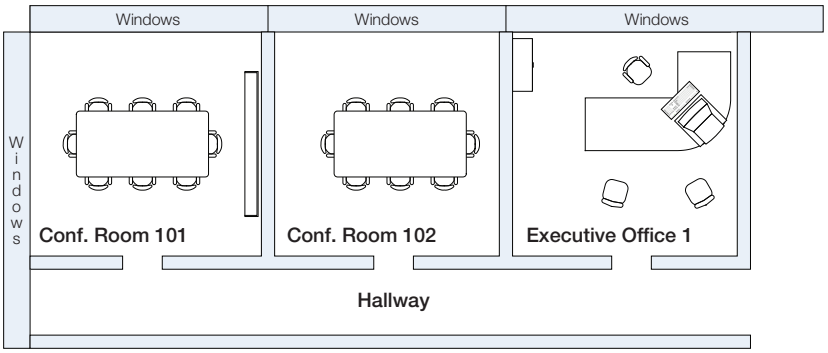


In both DALI® and EcoSystem® ESN systems, each loop can contain up to 64 individual ballasts. Each ESN, depending on its model, can control either one or two loops. An area of a given ESN can be comprised of some ballasts from loop 1, loop 2, or both.

Occupancy

Occupancy is a feature in which occupancy sensors installed in an area can be used to detect whether there are people in the space. If no one is present, the lights can be turned off to save energy. Generally, each area will have its own occupancy settings. These include which scene to activate when occupancy is detected and which scene to activate when vacancy is detected. However, there is also an option to group two or more areas together into a single larger occupancy group. All areas in an occupancy group share the same settings and if any area in the group becomes occupied, the entire group becomes occupied. Similarly, the entire group does not become vacant until each and every area reports that it is vacant. In short, the areas in the group behave like one single area with respect to occupancy functionality.

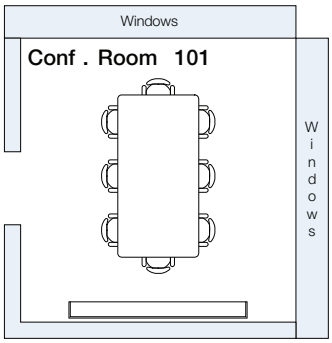
Another option that can be specified involves creating a dependent occupancy group. To create a dependent occupancy group, a given area's occupancy status is said to be dependent on that of one or more other areas. The diagram below provides an example scenario.

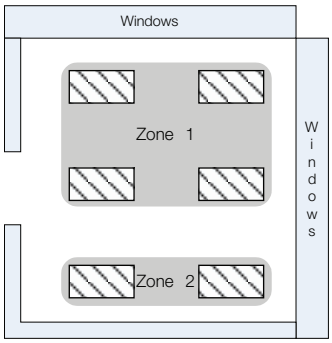


In this diagram, the Hallway could be said to be dependent on the other three areas (Conf. Room 101, Conf. Room 102, and Executive Office 1). What this means is that if any of these other three areas is occupied, the Hallway will stay occupied. However, the Hallway alone becoming occupied or unoccupied will not affect any of the other three areas. This feature is useful in this type of scenario in that the occupants of any of the three office spaces do not have to step out into a darkened hallway.

Scene

A scene is a preset group of light levels for the zones in an area that can be activated to achieve a desired lighting environment in that area. For example, in a conference room, there might be a scene called Presentation which could be defined as the conference table zone at 25% and the projection screen zone at 0%. Another scene in the same conference room might be called Meeting and might be defined as both zones at 85%. In an ESN, each area that is defined will contain 16 scenes plus an *Off* scene. For each scene, the user can define the light level that each zone should be at when that scene is activated. If desired, a zone can be set to *Unaffected* for a given scene, which means that activating that particular scene will have no effect on the zone's current light level. The diagram below illustrates the concept of scenes in the conference room scenario that we previously discussed.





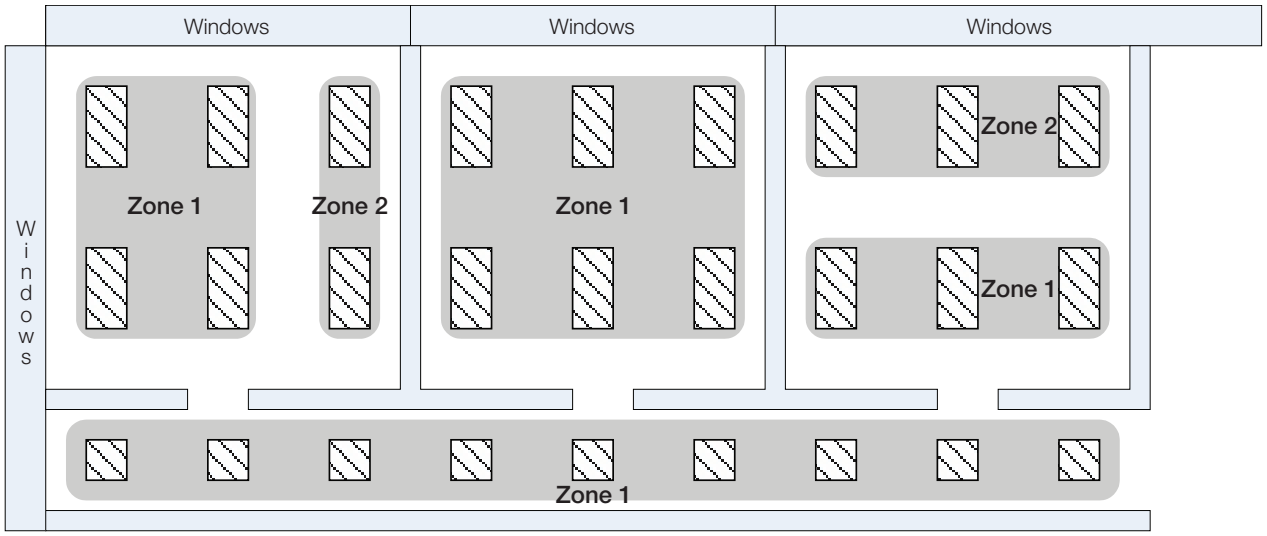
OFF Scene
Zone 1: 0%
Zone 2: 0%

Meeting Scene
Zone 1: 85%
Zone 2: 85%

Presentation Scene
Zone 1: 25%
Zone 2: 0%

Zone

A zone is a group of ballasts within an area that will be controlled together. This is useful when programming keypads or creating lighting scenes, as most areas contain several lights that are meant to act together as a whole (i.e., as a single zone). The diagram below shows the previous floor plan with some zone assignments exemplified.



You'll notice in the example that some areas have only one zone and others have two. Zones are defined based on how you expect the area to be used. For example, in the conference room at the top (Conf. Room 101), one zone of lights is defined over the conference room table and a second zone of lights is defined over the projection screen because it is likely that the occupants of the room will want to turn the projection screen zone off during a presentation, whereas they might like to leave the conference table zone on at a low light level for note-taking.

Note: For certain ESN models (such as 0-10 and Switching models), four zones are pre-defined for the user and cannot be modified. This is because these ESN models have four outputs, each of which is wired to a group of one or more ballasts. These outputs are actually controlling all of the lights wired to them as a whole. In other words, each output is effectively a group of lights that will be controlled together; the lights on a given output cannot be controlled individually. As a result, each output is automatically configured in the system as a zone.

Commissioning Guide

Overview

Once an Energi Savr Node™ system has been installed, you are ready to start commissioning the system. Commissioning is the process of setting up the system's configuration so that it operates as desired by the end user or building occupant.

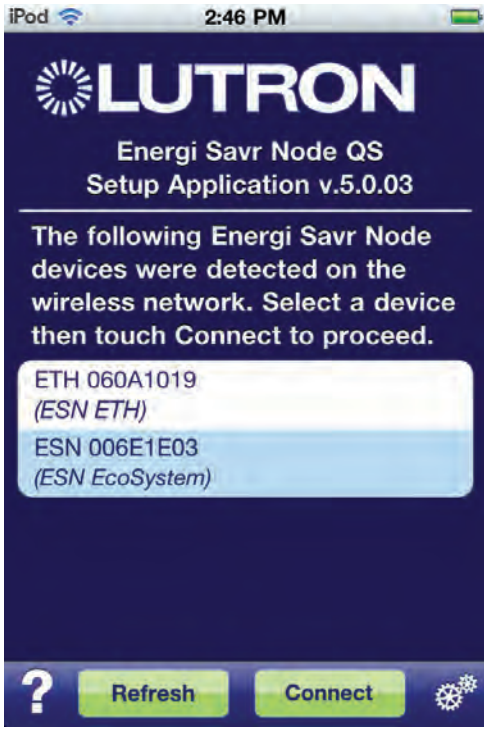
Initial Connection

Connect to an ESN System

Open the application by locating and selecting the Energi Savr app icon (shown at right).

Available Systems

When you first open the application, you will see the *Available Systems* screen shown here. Next to "Energi Savr Node™ QS Setup Application" you will see the application version number. A list of available systems will appear showing you the ESNs that are directly connected to the router only. This list will not contain all of the devices that are connected to the QS link.



Press *Refresh* to clear the list and re-query all directly connected devices. The list will also automatically refresh in the background. If a new device responds and becomes available, it will be added to the bottom of the list.

Select an ESN and press *Connect* to connect to the ESN and start downloading the necessary information.

Select the gears icon at the bottom right of the screen to view the advanced options available from this screen.

See *Interface Example 1: Available Systems*, p11, in the *How to Use the Handheld Device* section for more information on the *Available Systems* screen.

Enter Password

This screen prompts you for the password for the ESN to which you are connecting. If this is the first time connecting, the application will prompt you for a new password. Enter any new, case-sensitive password between 1 and 7 characters, without spaces. You will have to enter it twice to confirm the new password.

Direct Connect

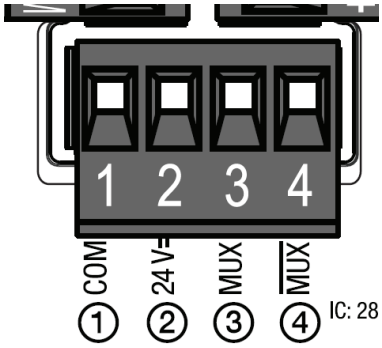
You can also connect to an ESN directly using an IP address and the *Direct Connect* feature. From the *Available Systems* screen, click on the *Advanced Settings* button in the bottom right of the screen. Then from the *Advanced Settings* screen, click on *Direct Connect*.

Enter the IP address of a specific ESN and press *Connect*.

Initial Connection Troubleshooting

Q – After connecting to the ESN, I get a message saying that certain devices failed to respond and would not be available for programming. What does this mean and how can I fix it?

A – This error message occurs when one or more QS Link connected device is failing to communicate across the link. A common QS link landing is shown below for reference.



Try the following steps in order:

1. Verify all QS link wiring. Common issues are missing, loose, or swapped inputs.
2. Power-cycle all devices connected to the QS Link.

If the above steps don't fix the problem, please call Technical Support.

Q – Whenever I try to connect to an ESN I get an error message saying "No response was received from the Energi Savr Node™...". What is wrong and how do I fix it?

A – This message may appear if there is a problem in the communication between the handheld device and the processor. There are several possible causes of this problem. Please refer to the *Set Up Zones/Define Light Troubleshooting* section, p33, for ways to address "No Response" problems.

Q – I cannot remember my ESN password. How can I recover or reset the password?

A – There is no way to recover a lost password. However, to reset a password, please refer to the *Reset ESN Password Manually* entry, p79.

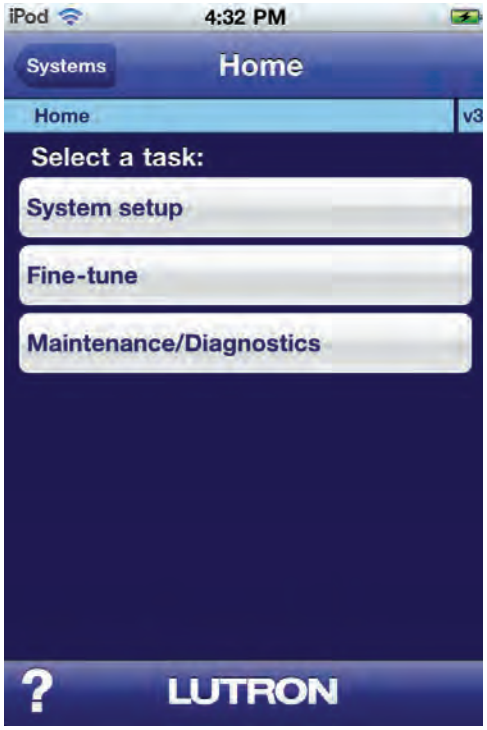
Home

This screen, as shown here, is the main launching-point for the entire application.

System Setup is the main button for setting up and programming devices, components, areas, zones, and scenes.

Fine-Tune allows adjustments of certain settings and controls. For most end-users, all of the changes that need to be made post-configuration can be found in *Fine-Tune*.

Maintenance/Diagnostics contains all upkeep-based tasks. Tasks include, but are not limited to, updating firmware, viewing device properties, changing password, and replacing ballasts. Please refer to the *Maintenance* section of this User Guide for more information on the available features of Maintenance/Diagnostics.



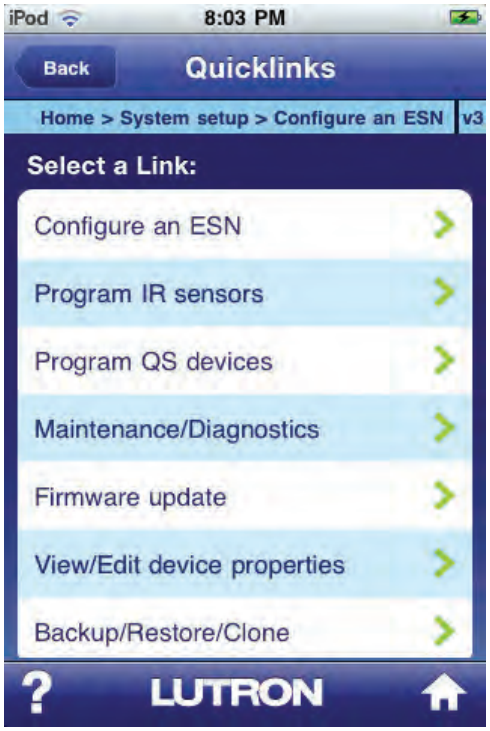
Quicklinks

The *Quicklinks* feature allows you to navigate from one location within the application to another with only a few buttons. Think of it as an optional dashboard to launch you into the most common programming screens.

The *Quicklinks* button is located on the right side of the bottom toolbar. There are some screens in which the *Quicklinks* feature is disabled, such as in the middle of a firmware update.

The available navigation buttons cover a variety of programming options. Touching the *Home* icon at the bottom right of the *Quicklinks* screen will navigate you to the *Home* screen described in an earlier section.

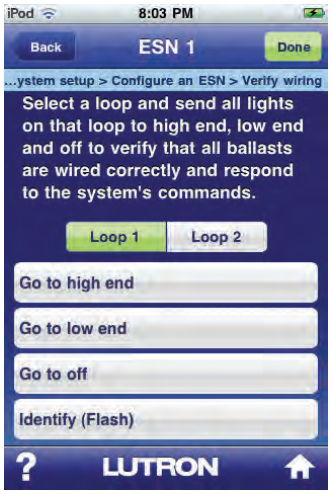
Note: Once you take a *Quicklinks* shortcut, pressing *Back* will not take you to the screen from where you came.



Verify Wiring

Before we can go further in the commissioning process, we need to ensure that the lighting has been wired properly and that all of the ballasts are able to respond to the system's commands. Using the handheld device application, **navigate to the *Verify Wiring* screen**. An example view of this screen is shown at right.
Home > *System Setup* > *Configure an ESN* (select an ESN and click on the green arrow) > *Verify Wiring*

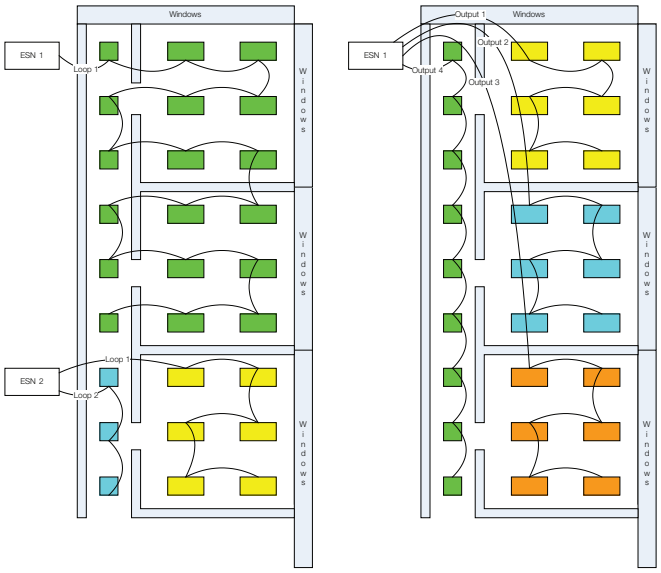
Depending on the model of ESN that you have selected for wiring verification, you will be able to verify either a loop of lights or individual lighting outputs.


iPod
8:03 PM
Back
ESN 1
Done
...ystem setup > Configure an ESN > Verify wiring
Select a loop and send all lights on that loop to high end, low end and off to verify that all ballasts are wired correctly and respond to the system's commands.
Loop 1
Loop 2
Go to high end
Go to low end
Go to off
Identify (Flash)
LUTRON

Visually Verify the Wiring of a System

To verify the wiring, select a loop or an output and use the buttons to send the lights to various levels. Walk around the space to ensure that all of the lights that are supposed to be responding—no more and no less—are, in fact, responding correctly to your commands. The diagram below shows some typical ESN/loop and output wiring.

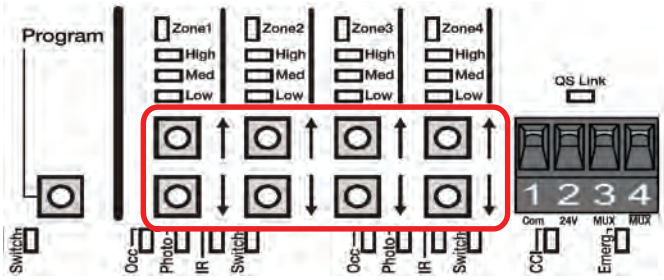
In order to verify wiring, each loop or output should be selected and sent to various light levels (e.g. high-end, low-end, flashing, or off). Using wiring plans or reflected ceiling diagrams, ensure that the correct lights are responding to each command. For example, in the diagram on the right, if ESN 2 and Loop 1 are selected and turned off, verify that all of the yellow fixtures did, in fact, turn off and that none of the other fixtures (blue or green) turned off.



Verify Wiring Troubleshooting

Q – I am using an ESN 0-10 or ESN SoftSwitch® and when I press *Identify*, the lights don't appear to do anything. What is happening?

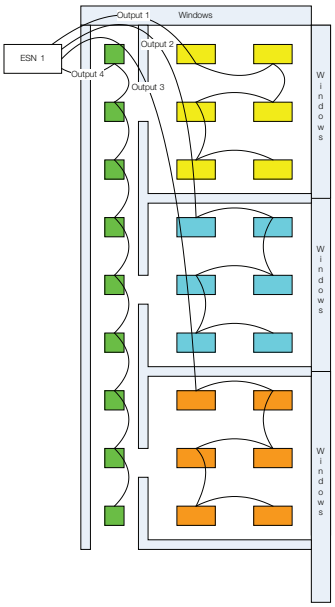
A – The ESN 0-10 international and domestic has a default scene fade time of 5 seconds. Depending on the fixtures you have wired to the output, you may not be able to notice a change in the lights. Try verifying the wiring by using the *Go To Low End* or *Go To High End* buttons, or by using the *Raise/Lower* buttons on the ESN processor (circled in red).



Set Up Load Types

Certain models of ESN units have outputs that can be configured for either dimming or switching (0-10 models, for example). These ESNs offer four outputs and each can be configured individually. The diagram on the right shows a typical wiring plan for an ESN system in which some lights might be configured for dimming and some for switching. Note that this configuration often has to depend on the type of fluorescent ballasts being controlled.

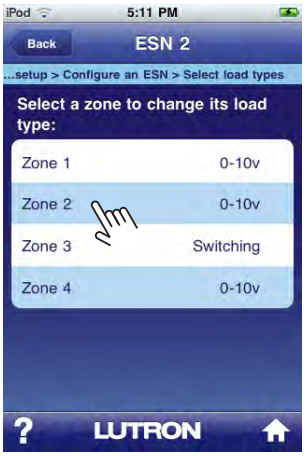
In the diagram, the hallway lights (green) might be configured for switching, whereas the office lights (yellow, blue, and orange) might be configured for dimming.



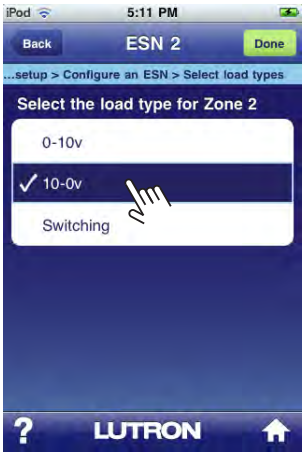
Configure the load types of an ESN

To configure the load types of an ESN, **navigate to the *Select Load Types* screen**...
Home > *System Setup* > *Configure an ESN* (select an ESN and click on the green arrow) > *Select load types*

On this screen, each output is displayed along with its current configuration. To change an output's configuration, select the output by touching the corresponding row to view the *Configuration* screen.



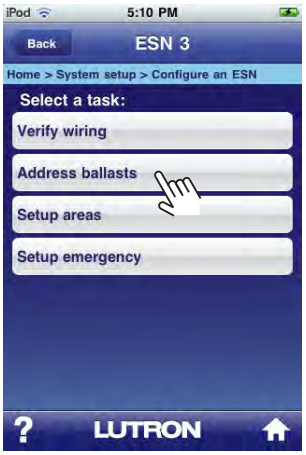
On the *Configuration* screen, select the configuration desired from the list and then touch *Done* in the upper right.



Address Ballasts

Certain models of ESN units can control digitally addressable ballasts, such as DALI® or EcoSystem® ballasts. These ESNs require the ballasts to be addressed before you can proceed further in the commissioning process.

In order to address ballasts, **navigate to the *Address Ballasts* screen**...
Home > *System Setup* > *Configure an ESN* (select an ESN and click on the green arrow) > *Address ballasts*



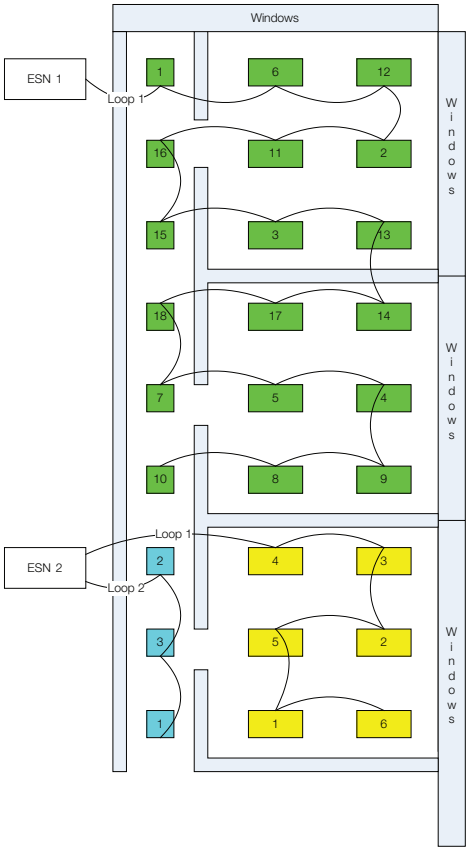
Address new ballasts on loop – This option leaves any ballasts that are already addressed intact and discovers and addresses only new (currently unaddressed) ballasts on the loop.

Re-address all ballasts on loop – This option resets the addresses of all of the ballasts on the loop and then re-addresses these ballasts, regardless of whether they already had an address. Note that when ballasts are re-addressed, they become disassociated from areas, zones, and daylighting rows.

Reset an individual ballast – This option allows you to select an individual ballast and reset it to factory defaults. After a reset operation, the ballast will be in an unaddressed state and will need to be addressed using one of the two options above. The reset feature is useful in cases when a ballast has been moved from one location to another and needs to have its previous configuration cleared.

iPod
5:14 PM
Back
ESN 3
...setup > Configure an ESN > Address ballasts
Specify which loop you would like to perform ballast addressing on and select an addressing task:
Loop 1
Loop 2
Address new ballasts on loop
Re-address all ballasts on loop
Reset an individual ballast
Identify

Once the ballasts are addressed, it means that the ESN has assigned numbers to each ballast on the loop and is able to communicate with the ballasts on an individual basis. Now the ballasts can be added to areas, zones, and daylighting rows. The diagram at the right shows an example of how the random numbers might be assigned to the ballasts in a typical ESN system containing two ESNs. Note that there is no need for a person using or commissioning the system to know what the actual numerical assignments are.



Address Ballasts Troubleshooting

Q – While addressing new ballasts it found fewer ballasts then was expected. Why?

A – There could be several reasons why the amount of ballasts found is fewer then the number expected. To troubleshoot this issue, first try adding all of the ballasts to an area and then identify that area. This will allow you to visually identify which ballasts have not been addressed.

Make sure that the ballast count is under the limit for the specific ESN device type in use.

If there are any ballasts that are installed, tested successfully, but not addressing, follow the *Basic Troubleshooting* steps in the *Troubleshooting* section on p93 to power-cycle and refresh all devices on the link.

Q – What do these numbers mean?

A – Each ballast can be referred to by an address such as 1-23. In this case the 1 refers to the loop that the ballast is landed on, which for ECO 1Link devices there is only one. The second number refers to the random address ID that was assigned to the ballast. The ballast addresses will not be in any specific order.

Move a Ballast to a Different Loop

If ballasts that are currently addressed need to be moved to another loop, you should first reset the ballasts that will be moved. If this is not done, the ballasts will retain their addresses when they are moved to the other loop which may result in duplicate addresses on the destination loop. When duplication addresses exist, those addresses must be reset or the entire loop must be re-addressed. Any ballasts that are reset and re-addressed must then be re-associated with areas, zones, and daylighting rows.

Associate Wireless Components to a QSM

The following steps detail the process to associate wireless components with QSMs.

Put the QSM Into Programming Mode

In order to associate wireless components to a QSM you must first put the QSM into programming mode. To put a QSM into programming mode do one of the following:

Push and hold the button labeled *Program* on the QSM.

OR

Shine the green laser into the recessed hole in between the Status LED and the *Program* button.

You will hear a sustained beep signaling that the device has entered programming mode. Once the QSM is in programming mode, the *Signal* LED on the component will blink in a heartbeat pattern with a regular frequency.

Associate Wireless Sensors

Wireless Daylighting Sensors

Push and hold the button labeled *Link* until the wireless sensor flashes rapidly for a short amount of time.

OR

Shine the green laser into the triangular recessed hole on the face of the sensor. Once the light on the sensor turns on for a sustained period of time, shine the green laser into the hole again. The light on the sensor will flash rapidly.

Wireless Occupancy (Occ) Sensors

Push and hold the button labeled *Lights Off*. The wireless sensor will flash rapidly for a short period of time.

OR

Shine the green laser into the recessed hole on the face of the sensor. Once the light on the sensor turns on for a sustained amount of time, shine the green laser into the hole again. The light on the sensor will flash rapidly.

Note that different model numbers may have different buttons. If you still require assistance to associate a particular sensor model, please contact Technical Support. Once a QSM has detected the wireless sensor it will beep loudly three times.

Associate Pico® Wireless Controls

Hold down the *Off* button on a Pico® wireless control until the QSM beeps three times. If the QSM beeps more or less than 3 times, please refer to QSM troubleshooting.

Set Up Areas

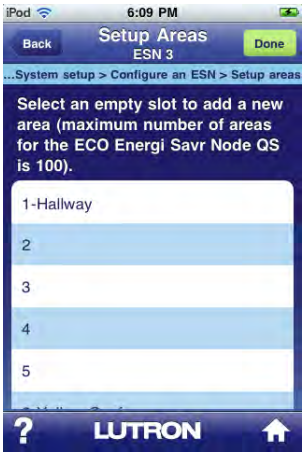
There are several steps that comprise the process of setting up areas. The first step is to determine the areas that will be created.

Create a New Area

In order to create areas, **navigate to the *Setup Areas* screen**...
Home > *System Setup* > *Configure an ESN* (select an ESN and click on the green arrow) > *Setup Areas* > *+ Add new...*

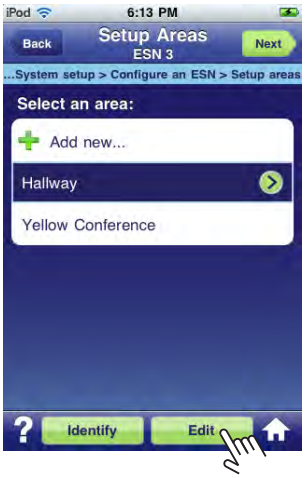
You will be prompted to choose an empty slot in the ESN. The screen will show you clearly how many areas you have already created and how many empty area slots are still remaining. Different ESN models support different maximum numbers of areas. Some models, such as the 0-10 and Switching models, automatically define four areas and do not allow additional areas to be created.

Once you have selected an empty slot, you will be prompted to name the new area that you are creating. A light grey default name will appear in the text field. If you wish to keep the inserted default name press *Save*. Otherwise, typing any letter will replace the default name with the new text.

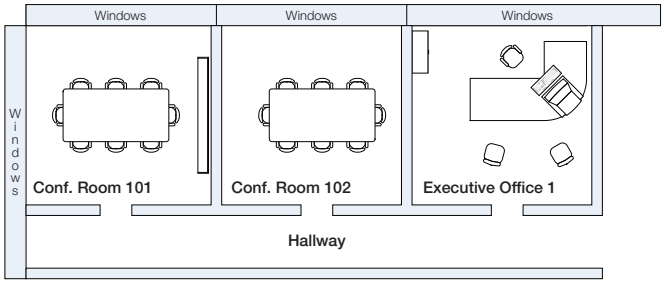


Rename or Delete an Existing Area

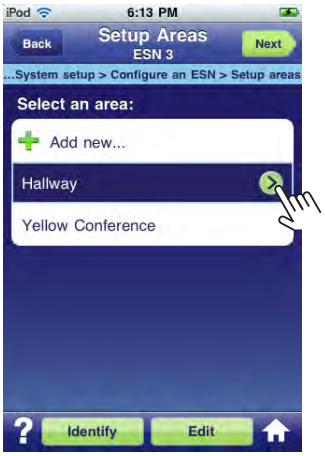
Note that existing areas can be renamed or deleted by using the *Edit* button at the bottom of the *Setup Areas* screen (shown at the right); simply select the row that corresponds to the area that you want to edit and then touch the *Edit* button.



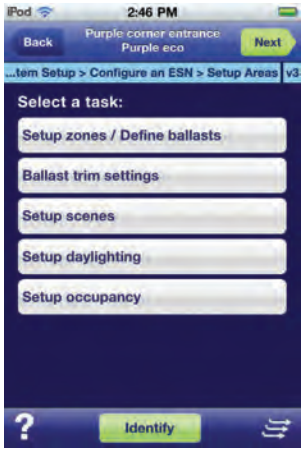
Creating areas should be done in a way that models how the space is physically laid out and how the space will be used. For example, using the floor plan at right, we should create four areas, as shown.



Once you have created an area or selected an existing area, you can use the *Next* button or the arrow that appears next to the selected area on the *Setup Areas* screen to navigate to the main setup screen for the selected area.



Once you navigate to the next screen, you will see several options related to the configuration of the selected area.



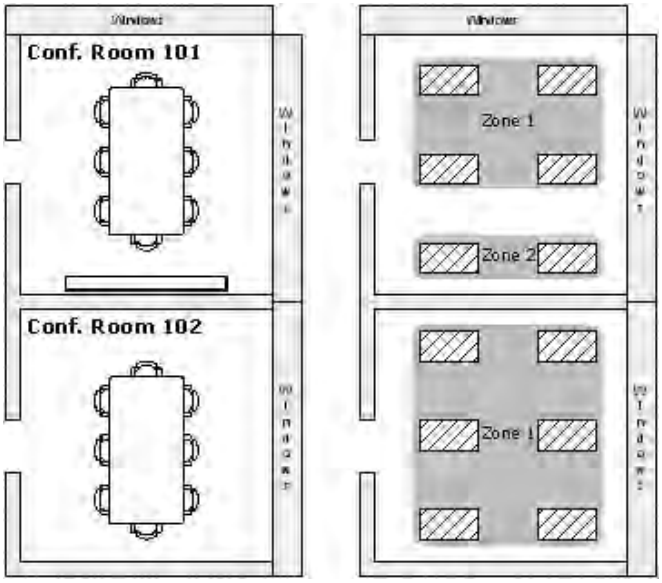
Set Up Zones/Define Lights

Now it is necessary to divide up the area into zones of lighting control and assign the specified ballasts to those zones. Only ESN models with digitally addressable ballasts (such as the DALI® and EcoSystem® models) require grouping the area into zones. Other ESN models already provide four zones, one for each hard-wired output.

What is a Zone?

A *Zone* in this system is a collection of one or more lights within an aread that are controlled only as a group. See the *Zone* entry, p19, in the *Lexicon* section for more information.

In the example at the right, Conf. Room 101 contains a conference table and a projection screen. In this case, it is desirable to be able to control the lights near the projection screen separately from the rest of the lights in the room. In the bottom conference room there is no projection screen so a standard, single-zone setup will be suitable for controlling the lights.



Set Up Zones

In order to define and set up zones for the current area, navigate to the *Setup Zones/Define Lights* screen. On this screen, you can either choose to add a new zone or modify an existing zone (in the example screen at right, there is one existing zone called *Downlights*).

Rename or Delete Existing Zones

To edit an existing zone's name or delete an existing zone, touch the *Edit* button on the bottom toolbar. Then, select the row that corresponds to that zone. Press the red *X* to delete the zone, or the *Rename* button to rename the zone.

Create a New Zone

To add a new zone, touch the *Add new*… option.

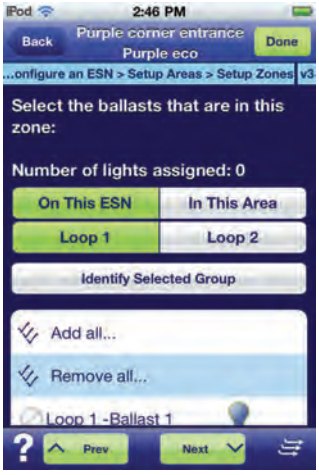
You will be prompted to choose an empty slot in the ESN. Choose an empty slot by touching the corresponding row. A light grey default name will appear in the text field. If you wish to keep the default name press *Save*. Otherwise, typing any letters will immediately replace the default name with the new text.

Different models of ESNs support different maximum numbers of zones. Some models, such as the 0-10 and Switching models, automatically define four zones and do not allow additional zones to be created. Other models, such as the EcoSystem® model, support 100 zones per ESN. The DALI® model supports sixteen zones per loop (for a total of 32 zones per ESN).

Note that for the ESN DALI® device type, a zone cannot be defined to contain ballasts from both loops—it must contain only ballasts from the loop on which it is defined. This ESN model will appear with an additional control at the top of the screen for specifying which loop is selected when adding a new zone.

Define Ballasts in a Zone

Now that you have your zones(s) created, it is time to define ballasts in those zones. In order to add ballasts to a zone, select a zone from the list and touch *Next*. You will see the following screen.



Filter Options

At the top you will see two filter options available. The top filter allows you to either view all ballasts on the ESN, or to view only the ballasts that already exist in this area. The bottom filter will switch between Loop 1 and Loop 2, which is determined by how the ballasts are wired together.

Flash an Individual Ballast

When you select a light, the corresponding fixture will start flashing in the space so that you can identify it. Touching the selected light again will stop the fixture from flashing. You can select lights one-by-one until a fixture in the zone you are establishing starts flashing.

Tip: You can use the *Next* and *Previous* buttons on the bottom toolbar to flash quickly through unassigned fixtures in sequence. Holding *Next* will add the currently selected ballast.

Add a Ballast to an Area

Any time you locate a ballast that needs to be added to the current zone, touch the *Add* button. A ballast already added to the current zone will have a check mark next to it; a ballast that has been added to another area or zone will have a grey circle symbol with a line through it.

Even though the corresponding indicator may have changed, changes on this screen will not be saved until you press *Done* or *Back*. *Done* will save automatically while *Back* gives you the options of *Save*, *Exit Without Saving*, or *Cancel*.

You can also remove a ballast from another area or zone and add it to this one from this screen. An *Alert* box will confirm that you want to remove the ballast from the previous area or zone and add it to the current zone.

Add All Ballasts to a Zone

Touch the *Add All…* button to add all unassigned ballasts into the current zone. Only ballasts that have not been assigned to other areas or zones will be assigned by pushing that button .

Remove a Ballast From a Zone

If necessary, you can select ballasts that are already added and touch the *Remove* button to remove them from the current area.

Remove All Ballasts From a Zone

It is also possible to remove all ballasts from the current zone by touching the *Remove All…* button. Remember that changes will not be saved until you press *Done* or *Back*.

Set Up Zones/Define Lights Troubleshooting

Q – While saving changes from this screen, the app shows an error message saying, "No response received from the Energi Savr Node™."

A – Whenever changes are made to the system, those changes need to be transferred from the *iTouch* device to the Energi Savr Node™ processor (the 13" by 9" blue box). If the ESN fails to respond after a specified amount of time, this "No Response" message will appear.

First look at the list of ballasts to see if the check marks remained from when you selected the ballasts before. If the same ballasts are selected, try to save changes again.

Before leaving the screen for any other troubleshooting, write down the ballast addresses that you were trying to add in order to avoid searching for them a second time.

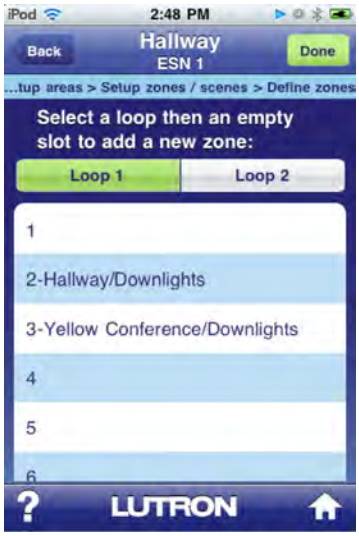
Follow the *Basic Troubleshooting* steps in the *Troubleshooting* section on p93 to power-cycle and refresh all systems on the link.

Q – I'm not sure if the correct lights were added properly to the area or zone.

A – At any time, you can go to the area list in *Setup Areas* and select the area in question and press *Identify*. All of the lights that have been added to this area will flash, allowing you to visually identify any problems. If you wish to identify all of the ballasts currently added to a zone, go to the *Setup Zones* screen and follow the same steps.

Q – Why can't I add a zone to an ESN 0-10 or SoftSwitch® device?

A – Some models, such as the 0-10 and SoftSwitch® models, automatically define four zones and do not allow additional zones to be created. Because these zones represent the hardwired outputs on the device, any changes need to be made to the physical wiring of the zones.



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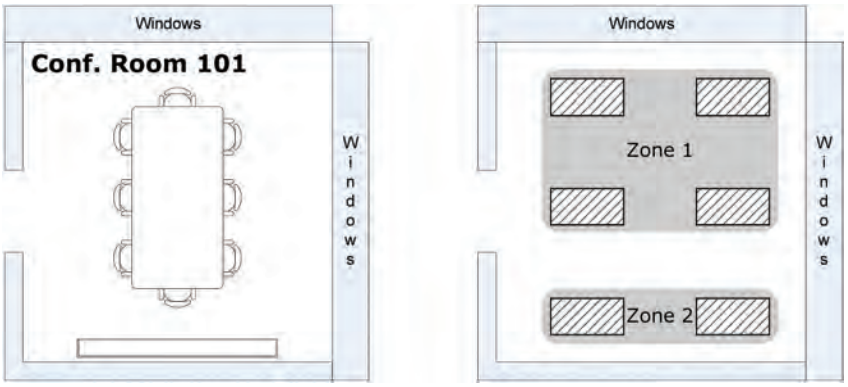
Set Up Scenes

Once you have specified which zones exist in the current area, you are ready to define the scenes for the area. Area scenes are pre-defined lighting settings that can be recalled instantly using keypads, IR transmitters, and other control devices.

On any model of ESN, seventeen scenes are automatically defined within each area. These scenes are given default names of *Scene 1*, *Scene 2*, and so on up to *Scene 16*; the names are editable on a scene-by-scene basis within each area. The seventeenth scene is *Scene Off* and is treated as the off scene by default (i.e., the scene that, when activated, turns off all of the zones in the area).

In a typical area, only the first few scenes are generally used. For example, the conference room shown below might have only two or three scenes that are used.



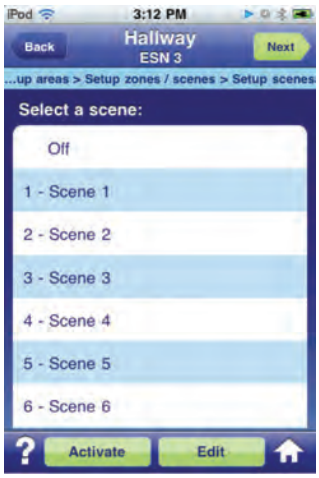
Off
Zone 1 – 0%
Zone 2 – 0%

Meeting
Zone 1 – 85%
Zone 2 – 85%

Presentation
Zone 1 – 25%
Zone 2 – 0%

To define scenes, navigate to the *Setup Scenes* screen, as shown here.

On this screen, you can select a scene by touching the corresponding row. A scene with daylighting enabled will appear with a sun icon on the right side of the row.



Activate Any Scene

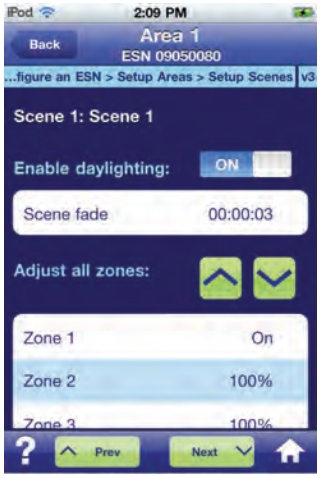
Once a scene is selected, you can activate it by touching the *Activate* button at the bottom of the screen. This will set the lights in the current area to the levels that are defined for the selected scene.

Rename a Scene

You can edit the scene's name by touching the *Edit* button.

Modify Scene Levels

In order to modify the zone levels for the selected scene, touch the *Next* button in the top-right portion of the screen or touch the arrow that appears in the row next to the selected scene's name. You will be taken to a screen similar to the one shown here.



On this screen, you are viewing the current settings for the selected scene. In the example above, we were working on *ESN 3*, in the area named *Hallway*. In the *Hallway*, the first scene is named *Scene 1*. There are two zones defined in the *Hallway* (named *Downlights* and *Wall Sconces*). Every zone is automatically a part of every scene in a given area.

Leave a Zone Unaffected by Current Scene

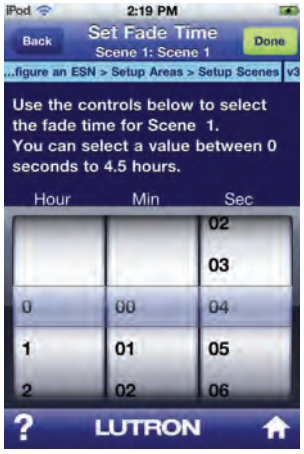
If you want a zone's light level to remain unchanged when a particular scene is activated, you have the option of specifying the scene setting for that zone as *Unaffected*. In this example, Scene 1, when activated, will send the Downlights to 100% and the Wall Sconces to On (the Wall Sconces are a switched zone and thus they can only be commanded to levels of *On* or *Off*).

Toggle Daylighting in Current Scene

You can choose whether to enable daylighting for the selected scene. If daylighting is enabled, when the scene is active in the selected area, the lights are free to dim down or switch off in response to input from photo sensors in the space (we will cover daylighting setup a bit later). If daylighting is disabled, the lights will go to the specified zone levels and will remain at these levels until another scene is selected, the room becomes unoccupied, or some other control event occurs.

Adjust Scene Fade Time

Scene fade time is the amount of time the lights take to fade from their current state to the selected scene. Press the *Scene Fade* button to adjust the value. The scene fade time is not dependent on how the scene was activated, or on the previous light levels. Adjusting the scene fade time is not supported on all devices.

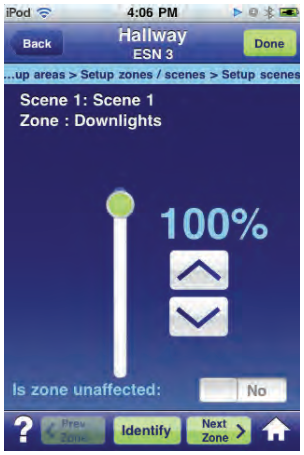


Adjust all Zone Levels

Also on this screen, you can adjust all of the zone levels at once using the master *Raise/Lower* buttons shown next to the text that reads *Adjust all Zones*.

Adjust an Individual Zone Level

To adjust an individual zone's level, touch the zone's row on this screen and you will be taken to a screen similar to the one shown at right.



When viewing this screen, you are able to edit the level of an individual zone within the context of the currently selected scene—this is Scene 1 in Hallway of ESN 3 for the example that we have been following. *Zone 1* is currently selected and is currently set to go to 100% whenever *Scene 1* is activated.

You can use the slider and/or the *Raise/Lower* buttons to change Zone 1's level within Scene 1. Similarly, you can use the *Yes/No* control to make Zone 1 unaffected when *Scene 1* is activated. If desired, you can flash *Zone 1* in order to quickly identify it in the space by using the *Identify* button at the bottom of the screen.

You can navigate among the other zones in the Hallway by using the *Next Zone/Prev Zone* buttons. This is often more convenient than setting a level for a zone, using the *Back* button to return to the previous screen, and then selecting another zone in order to return to this screen and set its level.

Navigate Between Particular Scenes

Another option that is available on this screen is navigating between scenes for the currently selected area. The *Next* and *Prev* buttons at the bottom of the screen will quickly navigate the user between the various scenes in the area. Note that each time a new scene is selected on this screen, that scene will become active in the area (i.e., the light levels will change). This is so that adjustments to the scene can be immediately perceived in the space and the correct levels can be determined.

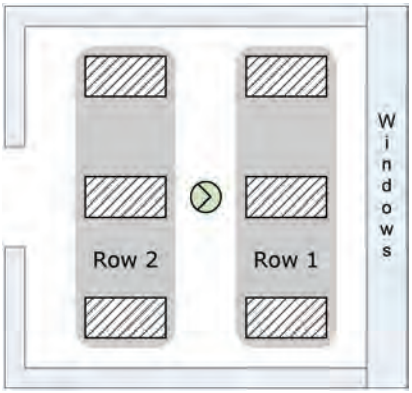
Save/Discard Scene Changes

Note that any time a change is made to a scene on this screen, the *Next* and *Prev* buttons are replaced with *Save* and *Cancel* buttons. Changes will not be saved until the *Save* button is touched; conversely, the *Cancel* button can be used to discard any changes. If you try to navigate away from the screen using the *Back* button, you will be asked whether you want to save or cancel your changes.

Set Up Daylighting

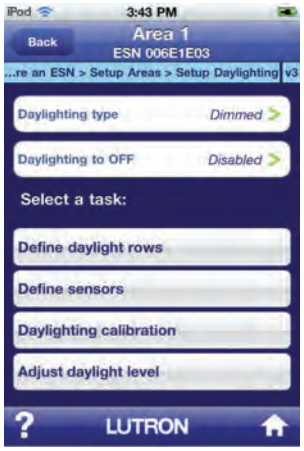
Daylight Harvesting is a feature in which photo sensors are used to measure the natural light (sunlight) that is incident to a space so that the electric lights can be dimmed down or switched off when sufficient natural light is present, thus saving energy.

Because natural light contributes less and less to the overall lighting in a space as one moves farther and farther from the windows, daylighting involves grouping ballasts into daylighting rows: lights nearer to the windows can then react more dramatically to fluctuations in natural light than lights farther from the windows. The example floor plan shown at the right illustrates a typical daylighting scenario.



The lights in Row 1 will react more dramatically to input received from the photo sensor, which is to say that they will dim lower (or switch off). This makes sense because more natural daylight will be present near the windows.

Daylighting requires some area-specific calibration steps in order to operate correctly. To begin setting up daylighting, navigate to the *Setup Daylighting* screen, which is shown at the right.



Define Daylighting Type

The first thing that must be determined on this screen is the daylighting type. An area can contain both dimmed and switched lighting, but the daylighting will affect either the switched lights or the dimmed lights—not both. Dimmed daylighting will dim the lights up and down as needed to maintain a reasonably constant user-defined light level in the area at the work surface. Switched daylighting will switch the lights on or off as needed to maintain a *minimum* user-defined light level in the area at the work surface.

Define Daylighting to Off

This feature will allow you to define whether *Daylighting to Off* is enabled or disabled for this area. *Daylighting to Off* is disabled by default with dimming loads. Since daylighting with switched loads merely alternates between *Off* and 100%, an area with switched loads will always have *Daylighting to Off* enabled.

When *Daylighting to Off* is disabled, the ballasts will limit their output while daylighting to a range between low-end and high-end. When *Daylighting to Off* is enabled, the ballasts will dim to *Off* instead of to their low-end.

Low-end is defined as the lowest non-zero value physically possible by the ballast, which varies from one model to another. *High-end* is defined as the greatest possible electric light output, or 100%. Both of these values can be changed by adjusting high-end and low-end trim settings in *Advanced Ballast Settings*.

Daylighting to Off Troubleshooting

Q – I am currently daylighting my area and the lights are frequently turning off then on again causing a distracting change in light in the area.

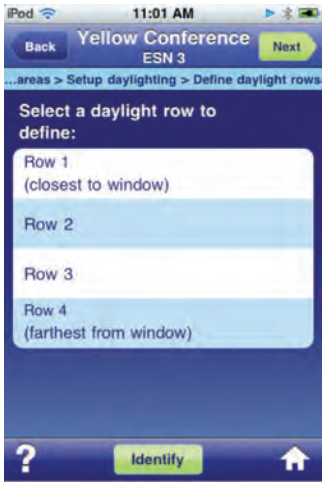
A – Disable *Daylighting to Off*. For some ballasts and lamp combinations, the difference in visible quantity of light in a space when the ballast goes from low-end to *Off* is a very noticeable amount. Occasionally, this behavior is distracting and a smoother transition may be desired.

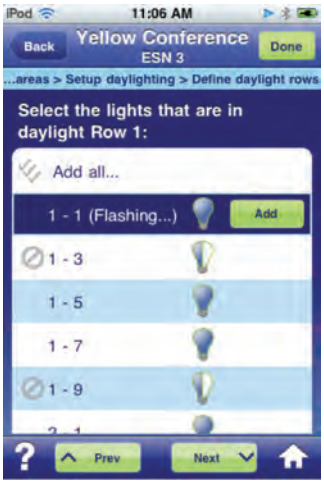
Define Daylighting Rows

Once the daylighting type has been determined, you can move on to defining the daylighting rows. As discussed in the previous examples, this involves selecting which ballasts in the area will be a part of which daylighting row. Four daylighting rows are pre-defined in each area. You can use any or all of the daylighting rows, as desired. It's important to select groups of ballasts that are closer to the window and place those in the lower-numbered daylighting rows; ballasts farther from the windows should be placed in the higher-numbered daylighting rows. The rows used must be consecutive rows (e.g., in an area with only 2 rows of ballasts, you should assign ballasts to Row 1 and Row 2, while ignoring Row 3 and Row 4). Note that only the ballasts that you want to daylight should be placed into daylighting rows.

To begin, touch *Define Daylighting Rows* to navigate to the first screen, shown at the right.

On this screen, you can select a daylighting row by touching the corresponding row on the screen. Once a row is selected, you can touch the *Identify* button at the bottom of the screen to flash all of the lights (if any) that are currently part of the selected row. To define which ballasts are part of the selected row, touch the *Next* button at the top-right of the screen or touch the arrow that appears next to the name of the selected row. You will see a screen similar to the one shown at the far right.





Add a Ballast to a Daylighting Row

This screen allows you to select which ballasts in the area will be part of the selected daylighting row. To select a light, touch the corresponding row on the screen. The light will begin flashing in the space. If you want the flashing light to be a part of the currently selected daylighting row, touch the *Add* button.

A ballast already added to the current daylighting row will have a check mark next to it; a ballast that has been added to another daylighting row will have a grey circle symbol with a line through it.

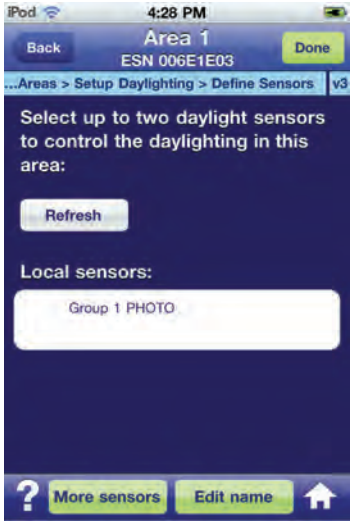
Even though the corresponding indicator may have changed, no changes will be saved until you press *Done* or *Back*. *Done* saves automatically while Back gives you the options of *Save*, *Exit Without Saving*, or *Cancel*.

You can also add ballasts that have already been added to another row. An *Alert* box will confirm that you want to remove the light from the previous row and add it to the current row.

You cannot add ballasts of incompatible types, for example, if the daylighting type for the area is dimmed; switched lights cannot be added to any daylighting rows.

Define Local Daylighting Sensors

Once you have added all of the desired ballasts in the area to daylighting rows, you can move on to the next step, which is to define which photo sensors will control the daylighting for the current area. Navigate back to the *Setup Daylighting* screen and touch the *Define Sensors* button. You will see a screen similar to the one shown at the right.



Initially, this screen shows only local sensors, which means those photo sensors that are wired directly to the current ESN or that are wired to EcoSystem® ballasts controlled by the current ESN. You can select sensors by touching *Add* on the corresponding row.

A maximum of two photo sensors can be selected to control the daylighting in a given area. If two sensors are used, their photo values are averaged together before being used for daylighting calculations.

Identify a Local Daylighting Sensor

Newer models of photo sensors are equipped with a flashing light indicator so that you can identify the sensor in the space. For sensors wired to ballasts, the lamps controlled by the ballast will flash to help identify the sensor. Alternatively, you can identify sensors by shining a bright light (from a flashlight, for example) at a sensor. After some time, light signal indicators will appear on the screen under the name of the corresponding sensor that is perceiving an above-average amount of light input.

Rename a Local Daylighting Sensor

Once you have identified a sensor, you can select it and change its name by using the *Edit Name* button at the bottom of the screen. When a sensor has been given a meaningful name, it becomes easy to identify that sensor in the future.

Define Remote Daylighting Sensors

Sensors from other ESN devices, as well as sensors from QSM devices, can also be selected. In order to do this, use the *More Sensors* button at the bottom of the screen.

You will see a list of other devices on the link that can provide additional sensors. Select a device in order to view its sensors and select from among them.

Refresh List of Connected Devices from *Define Sensors* Screen

Press *Refresh* on the bottom toolbar to refresh the list of connected devices. If a QSM or ESN is connected to the QS link since you connected to the master ESN, it will appear on this list only after you press *Refresh*.

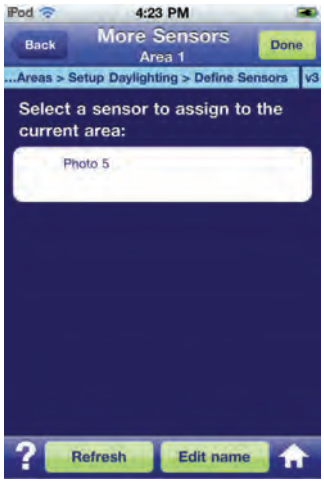
Rename a Connected Device from *Define Sensors* Screen

You can also rename a connected device from this screen by selecting the desired device and pressing *Edit*.

List Remote Daylighting Sensors

Once you press *Next* you will see a list of sensors connected to the remote device. You will also see the current status of the sensor.

In order to assign a sensor to the area, simply touch the sensor's row on the screen and then touch the *Add* button so that a checkmark appears next to the sensor's row on the screen.



Identify a Remote Sensor From *Define Sensors* Screen

There are multiple techniques to identify a remote sensor from *Define Sensors*. Some wireless daylighting sensors can be identified by pointing a green laser into the triangular hole on the front of the sensor. Others may require you to physically change the amount of light input, which will be represented in tick marks on the screen in the corresponding sensor row. This can be achieved with a laser pointer, a flashlight, a cup, or a piece of tape.

Refresh Remote Daylighting Sensors

On this screen you can press *Refresh* to refresh the remote daylighting sensors connected to the selected device. This button will not refresh other remote daylighting sensors connected to other ESNs or QSMs.

Rename Remote Daylighting Sensors

Press *Edit Name* to edit the name of any remote daylighting sensor on this screen.

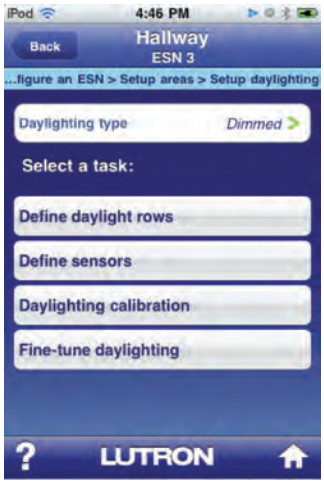
Calibrate Daylighting

Once you have selected the sensor(s) that will control daylighting in the current area, you are ready to calibrate daylighting. Daylighting calibration should be performed during the daytime on a day when there is consistent but indirect sunlight. Dark, cloudy days or days with highly-variable cloud cover that frequently change the sunlight conditions should be avoided. Additionally, times of day when the sunlight penetrates directly into the space should be avoided (such as morning or evening).

Note: If you are using wireless daylighting sensors, you must place these sensors into *Calibration Mode* before you calibrate daylighting. *Calibration Mode* allows the sensor to send values at a much faster rate by activating the *Daylighting Wizard* which uses the most up-to-date photo sensor values while calibrating daylighting.

To do this, press and hold the button labeled *Cal* on the front of the sensor for 5 seconds. The LED will come on when the mode is enabled, and flash every 2 seconds indicating that the sensor is sending data.

Lights On Measurements – In order to start the calibration process, touch the *Daylighting Calibration* button, shown to the right. This will take you through the daylighting calibration wizard. On the first screen, the lights in the area will be sent to full brightness and you will be asked to allow the lights to warm up for about 3 minutes before taking any measurements. You should ensure that you do wait for the required time because fluorescent lights take a few minutes to come to full brightness when they are first turned on. If you do not wait, the results may not be accurate.



The calibration steps for dimmed daylighting and switched daylighting vary slightly, but the general principal is the same. First the lights will be sent to full brightness and the system will take some readings of the daylighting sensor values. You may also be required to take a reading with a light meter at this stage.

Lights Off Measurements – Next, the lights will be turned off and the system will take more readings. Again, you may have to take various readings with a light meter. All readings taken with a light meter should be at the positions indicated by the application. Generally, this will be directly underneath the various daylighting rows and at a height from the floor that is in accordance with the work surface height that will be used in the space.

Fine-Tune Calibration – The final step of daylighting calibration is the *Fine-Tune* screen. On this screen, you are able to adjust the daylighting level to meet the desired behavior.

Note: Occasionally, when you get to this screen the slider will already be at the maximum value. This means that the daylighting calibration equations have determined that the value you adjust on this screen should be at the maximum already.

If the light level is lower than desired, the fixtures are dimming below 100%, and the *Fine-Tune* slider seen on this screen is at a maximum, try recalibrating daylighting. If the same issue occurs again, call Technical Support for troubleshooting assistance.

Warning Messages

There are three warning messages that you may see during calibration. Each warning is alerting you to a particular problem with the current daylighting setup.

If you receive the following warnings while calibrating daylighting, take a minute to understand what the warning is telling you. If daylighting calibration still does not function properly after following the recommended steps below, then please call Technical Support.

"Warning: The area is currently too bright to properly calibrate daylighting. If you complete daylighting calibration now, daylighting will not work correctly. Please try again during different sunlight conditions."

This warning message occurs when the amount of natural light at the work surface height is greater than the specified desired light level, which will decrease the accuracy of the calibration. Although it is possible to calibrate under these conditions, there is no way to determine if it is working properly because the lights will remain at *Low End* during these conditions. If possible, wait until the natural light at the work surface height has decreased, then recalibrate.

"Warning: The amount of light provided by the fixtures is less than the desired light level. This may result in insufficient lighting conditions."

This warning message occurs when the difference between the light measured at the work surface with the fixtures at 100% and the light measured at the work surface with the fixtures at 0%, is less than the specified desired light level. In other words, the system has determined that the fixtures provide 30 foot candles (FC) of light on their own, without any daylighting, while the customer has specified a desired light level of 40FC. Since daylight harvesting dims the lights when it receives photo sensor light levels, this scenario may result in insufficient lighting conditions. If the condition persists and causes issues with the daylighting behavior, contact Technical Support for assistance.

"Warning: The daylighting sensor(s) is currently reading in too much artificial light to properly commission daylighting. If you continue, the light level may oscillate back and forth. Please adjust the placement or direction of the daylighting sensor(s) and try again."

This warning occurs when there is too much fixture light feedback. This is most likely due to the sensor location and orientation. Try to position the sensor in a place that minimizes the amount of light from the fixtures contributing to the sensor readings. Otherwise, the lights may oscillate back and forth, or more commonly result in insufficient light in the space.

Daylighting Calibration Troubleshooting

Q – The app is telling me that the daylighting sensor is disconnected and I cannot calibrate daylighting. How do I fix this?

A – Verify the wiring of the sensor and/or QSM. If the sensor is an RF Wireless sensor, make sure the daylighting sensor is in calibration mode, then restart the application and try again. If you are using a wired sensor, try "waking" the sensor by shining light directly on the sensor for 10-20 seconds. If the problem still exists, follow the *Basic Troubleshooting* steps in the *Troubleshooting* section on p93 of this guide.

Q – The app is telling me that the wireless daylighting sensor is detecting too much light, over 100FC, and I am currently blocked from calibrating daylighting. How do I fix this issue?

A – The sensitivity of the wireless daylighting sensors are rated to detect light up to 100FC. The Energi Savr application can detect when this is occurring and will block you from proceeding with daylighting calibration.

If you calibrate daylighting with these invalid values, the behavior will be unpredictable and undesirable. To avoid this issue, please wait until later in the day when the light level has decreased below 100FC. If you do not have time to do so, find a way to decrease the light level entering the space, either with shades or other items. You must be careful simulating a darker atmosphere however; if the decrease in light darkens the room in an imbalanced manner then daylighting may be inaccurate. For example, if you use a cardboard box to block only half of the window, then the simulated environment is no longer an accurate representation of the shape and size of the window. Try to equally block all of the windows in the area.

Q – The light in my workspace is not bright enough, and the fixtures do not appear to be daylighting below their maximum value. I go to *Fine Tune Daylighting*, and the slider is already at its highest value. Why does this slider indicate 100% when my lights are not at 100%? And how can I adjust the daylighting performance beyond this *Fine Tune Daylighting* screen?

A – The value you are seeing represented on the *Fine Tune Daylighting* screen is only one of many of the parameters that define how daylight harvesting behaves in a space. If you have a light meter, click on *Daylighting Calibration* and follow the steps to recalibrate daylighting. You could also increase the *Desired Light Level* on the first screen of daylighting calibration as desired, but be sure to complete the *Calibration Wizard* or else your changes will not be saved.

If you do not have a light meter, call Technical Support to walk you through adjusting the daylight harvesting behavior without calibration.

Fine-Tune Daylighting

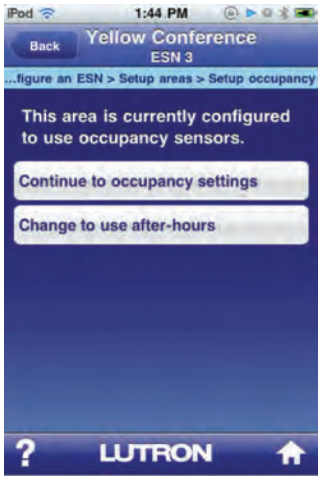
Once daylighting has been calibrated, you may find that you would like to make some minor adjustments to the daylighting behavior. Running through the *Daylighting Wizard* again is one option, however, you can also use the *Fine Tune Daylighting* feature available on the main *Daylighting* screen.

From this screen you can modify the light level that the system will try to maintain in the space. This is most useful if dimmed daylighting needs to be a bit brighter or dimmer overall, or if switched daylighting needs to switch the lights earlier or later across the entire area.

Set Up Occupancy

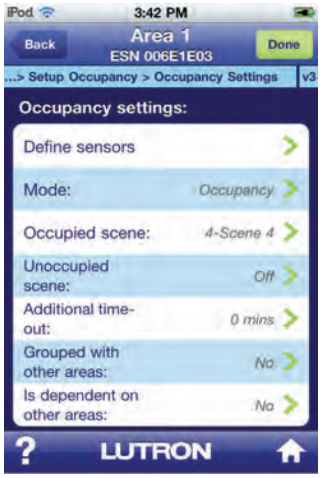
Occupancy is a feature in which occupancy sensors are used to determine whether a space is occupied or unoccupied. When the space is unoccupied, the light levels can be reduced or turned off completely, saving energy. Occupancy in a space can be achieved by using one or more occupancy sensors. If more than one sensor is used, the sensors work together. In other words, the space will be considered occupied as soon as any one sensor registers movement, and similarly, the space will not be considered unoccupied until all sensors register that there has been no movement.

To set up occupancy, navigate to the *Setup Occupancy* screen. You will be taken to a screen similar to the screen shown at top right.



On this screen, you must choose whether you will program Occupancy (using occupancy sensors) or After-Hours. In any given area of an ESN, you may not have occupancy sensors available. If occupancy-type functionality is still desired, the After-Hours feature may be used in that area. In After-Hours, user interactions with controls in the space confirm the presence or absence of people in the area, in lieu of occupancy sensors. We will discuss the After-Hours feature in more detail later.

To continue with occupancy setup, touch the button that says *Continue to Occupancy Settings* and you will see a screen similar to the one shown at bottom right.



On this screen, all of the settings that govern occupancy in the current area are displayed. We will now briefly review what each of these settings accomplishes.

Adjust Local Sensor Timeout Values

Occupancy sensors often have local timeout values that can be set using knobs or switches directly on the sensor itself. The local timeout value controls the amount of time between when the sensor detects no movement and when the sensor signals that it is now officially unoccupied. Generally, sensors have local timeout values that cannot go below some minimum time (such as 8 minutes).

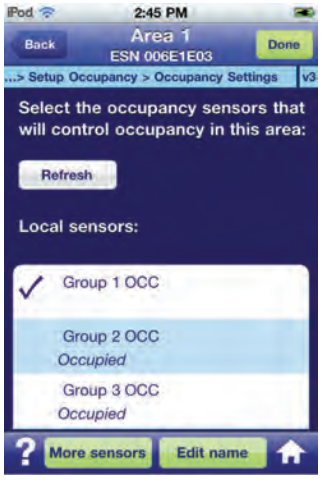
Adjust Local Sensor Sensitivity

Occupancy sensors often have sensitivity controls as well, so that the degree of sensitivity to movement can be modified if needed.

Define Occupancy Sensors

Touch this option to be taken to a screen where you can select which occupancy sensors exist in the current area and will be used to govern occupied/unoccupied status in the area. Note that you should not place sensors into this area if they physically exist in another area in your space. In order to have sensors from another area affect the occupancy status of this area, see the *Grouped with Other Areas* and *Is Dependent on Other Areas* entries, p50.

When you touch the *Define Sensors* option, you will see a screen that looks like the screen at the right.



Initially, this screen shows only local sensors, which means those occupancy sensors that are wired directly to the current ESN or that are wired to EcoSystem® ballasts controlled by the current ESN. You can select sensors by touching the corresponding row on the screen.

Identify an Occupancy Sensor

If the sensor that you have selected is a wired sensor and is receiving power directly from the device to which it is connected (e.g., an ESN), the selected sensor will be identified in the space by flashing its motion indicator LED. For sensors wired to ballasts, the lamps controlled by the ballast will flash to help identify the sensor. Alternatively, you can identify sensors by placing them into test mode (this is generally accomplished by buttons and/or switches located on the sensors themselves). When the sensor's status changes state, this will be reflected on the screen to help identify the sensor in question.

Rename an Occupancy Sensor

Once you have identified a sensor, you can select it and change its name by using the *Edit Name* button at the bottom of the screen. When a sensor has been given a meaningful name, it becomes easy to identify that sensor in the future.

Refresh all Present and Remote Occupancy Sensors

Press *Refresh* on this screen to refresh all present and remote occupancy sensors.

This button will also refresh the connected device list, so that it will detect any new QSMs that have been connected since the last refresh.

Define Occupancy Sensors From Remote Devices

Sensors from other ESN devices, as well as sensors from QSM devices, can also be selected. In order to do this, use the *More Sensors* button at the bottom of the screen.

You will see a list of other devices on the link that can provide additional sensors. Select a device and press *Next* in order to view its sensors and select from among them.

Refresh List of Connected Devices from *Define Sensors* Screen

Press *Refresh* on the bottom toolbar to refresh the list of connected devices. If a QSM or ESN was connected to the QS link after you connected to the master ESN, it will appear on this list only after you press *Refresh*.

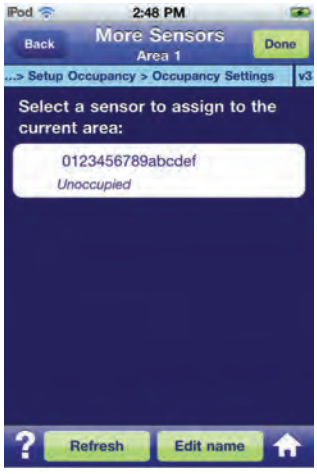
Rename a Connected Device from *Define Sensors* Screen

You can also rename a connected device from this screen by selecting the desired device and pressing *Edit*.

List of Remote Occupancy Sensors

When you press *Next*, you will see a list of sensors connected to the remote device. You will also see the current status of the sensor.

In order to assign a sensor to the area, simply touch the sensor's row on the screen and then touch the *Add* button so that a checkmark appears next to the sensor's row on the screen.



Identify a Remote Sensor From *Define Sensors* Screen

To identify a connected device, select the desired device and press *Identify*. There will be different behaviors depending on the type of device you are identifying.

Identify a Wireless Remote Sensor

To identify a wireless remote sensor, you must click on the QSM that the sensor is associated to. While looking at the list of associated sensors, press and hold the button that identifies the specific sensor. For RF Photo sensors, use the *Cal* button, and for RF occupancy sensors use the *Lights On/Off* button.

Refresh Remote Occupancy Sensors

On this screen, press *Refresh* to refresh the remote occupancy sensors connected to the selected device. This button will not refresh other remote occupancy sensors connected to other ESNs or QSMs.

Specify Mode

Back on the *Occupancy Settings* screen, the next option in the list is the *Mode* option. This option allows you to switch the current area between *Occupancy Mode* and *Vacancy Mode*. In *Occupancy Mode*, the sensors in the area will report both occupied and unoccupied status updates, allowing the lights to be turned on as desired when the area is occupied, and turned down or off as desired when the area is unoccupied. In *Vacancy Mode*, the sensors in the area will report only unoccupied status updates and will not affect any changes in the area when it becomes occupied. *Vacancy Mode* is useful in a space that contains alternative controls, such as Pico® wireless controls or SeeTouch® Keypads.

Specify Occupied Scene or Unoccupied Scene

These settings allow you to specify the scenes in an area that will be selected when the area becomes occupied or unoccupied. Note that if you have selected *Vacancy Mode* for the area, the occupied scene will be set to *Unaffected* and you will not be able to modify it. Generally, the occupied scene is set to some lights on scene, such as *Scene 1*, whereas the unoccupied scene is set to the *Off Scene*.

Specify Additional Timeout

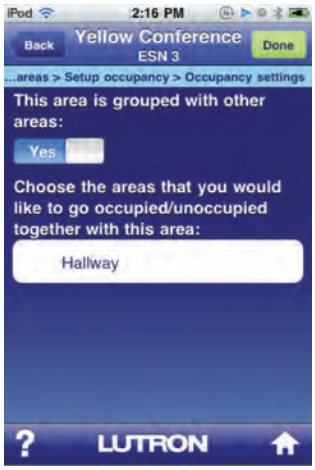
This setting allows you to specify an additional timeout value that extends the timeout value that can be set locally on the occupancy sensor itself. For example, if the occupancy sensor has a knob for adjusting its timeout value and this is set at 4 minutes, you can specify an additional value of 5 minutes on this screen, making a total time of 9 minutes between the space being unoccupied and the lights going off.

Set Up an Occupancy Group

Grouped with Other Areas

Sometimes, it is desirable to have two or more areas act together from the standpoint of occupancy. This may be because one or more areas does not have its own occupancy sensors or because the areas are really part of a larger single space and have been sub-divided for some other purpose (e.g., daylighting only part of the larger space). When two or more areas act together in an occupancy group, all of the areas in the group will become occupied as soon as any one area registers occupancy. Similarly, all of the areas in the group will not become unoccupied until each and every area in the group reports that it is unoccupied.

To set up an occupancy group, touch the *Grouped with Other Areas* option. You will see a screen similar to the screen at the right.



If you want to group the area with another area on the same ESN, select *Yes* and then select the other areas within the current ESN that you want to group together with the current area. Note that when you create an occupancy group, all of the areas in the group will be changed to have the same occupancy settings as the current area. In other words, all areas within a single occupancy group have the same mode, occupied and unoccupied scene number, and additional timeout value. Also note that although the occupied and unoccupied scene numbers will be the same, the scenes are still defined on an area-by-area basis, so the lights can go to different values for the different areas in an occupancy group.

Is Dependent on Other Areas

Dependent groups are similar to regular occupancy groups except that the dependent groups work in only one direction. In other words, if an area A is dependent on another area, B, this means that B's occupancy status will affect A's occupancy status, but A's occupancy status will not affect B's occupancy status. This is most often used in a hallway/conference room scenario. See the *Occupancy* entry, p18, in the *Lexicon* section for a clear explanation of this scenario as well as a diagram that helps to illustrate the concept.

Set Up After-Hours

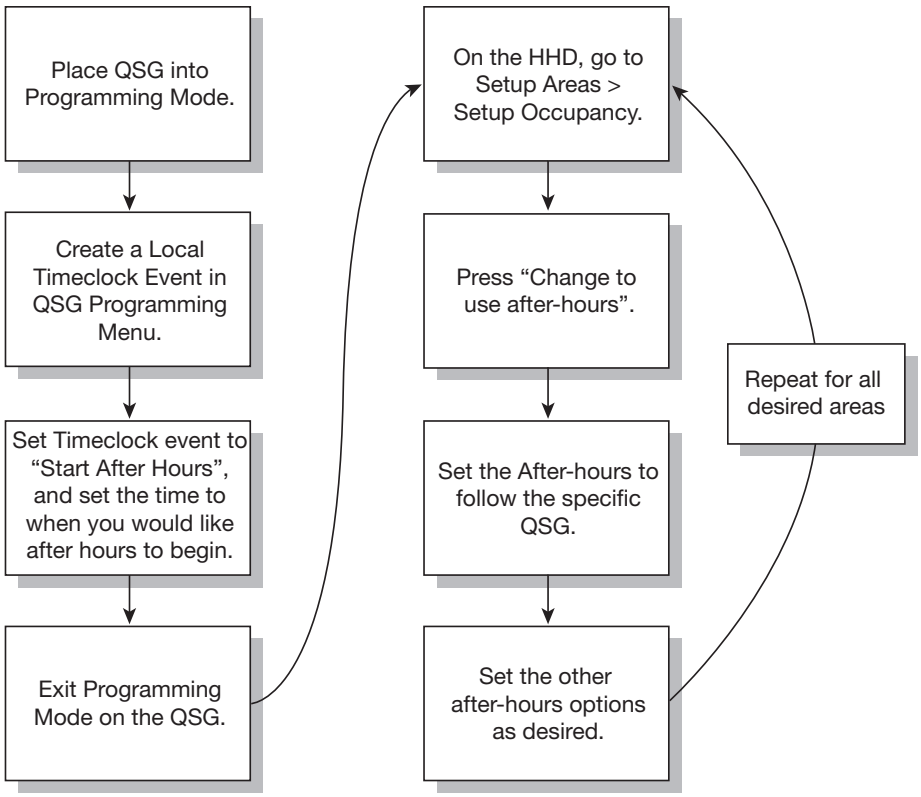
After-Hours is a feature in which user interactions with controls in the space are used to confirm the presence or absence of people in the area, in lieu of occupancy sensors. A typical After-Hours scenario might happen as follows:

During the day, After-Hours is typically not running in an area. If the lights are turned on, they stay on. At 6 pm, After-Hours is initiated via a timeclock device. The lights in the area flash 3 times to warn occupants that the lights will be turning off shortly. At this time, the blink-warn timer begins. Generally, this timer is set to 15 minutes. If there are any occupants in the space, they have 15 minutes to interact with a wall control (keypad) in the space by pressing a button in order to let the system know that they are still in the room. The lights will turn off if there is no interaction after 15 minutes. If an occupant does interact with a wall control, the lights remain on, the blink-warn timer is cancelled, and the After-Hours timer begins. This timer is generally set to 45 minutes and counts down the time until the next attempt is made to force the lights off. After 45 minutes, the lights will flash 3 times and the blink-warn timer will begin again. At some later point, the same device that initiated After-Hours will end After-Hours.

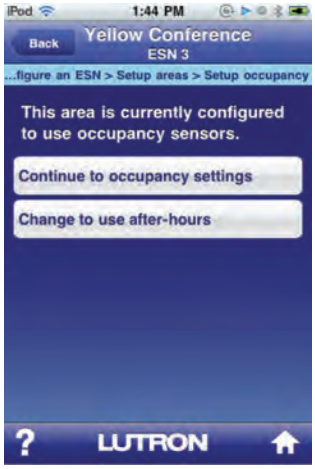
Set Up After-Hours From a GRAFIK Eye® QS control unit (QSG)

Use the following diagram as well as the following description to set up After-Hours from a QSG.

Note: The type of *Timeclock* event on the QSG needs to be set as *Local*. This means that the QSG will also enter After-Hours at the same time as any of the other connected devices that are triggered by the event.


Place QSG into Programming Mode.
Create a Local Timeclock Event in QSG Programming Menu.
Set Timeclock event to "Start After Hours", and set the time to when you would like after hours to begin.
Exit Programming Mode on the QSG.
On the HHD, go to Setup Areas > Setup Occupancy.
Press "Change to use after-hours".
Set the After-hours to follow the specific QSG.
Set the other after-hours options as desired.
Repeat for all desired areas

Set Up After-Hours Description



To set up After-Hours in a space, navigate to the *Setup Occupancy* screen in the *Setup Areas* portion of the application. You will see a screen similar to the one shown at the right.

Touch the *Change to Use After-Hours* button in order to set up After-Hours.

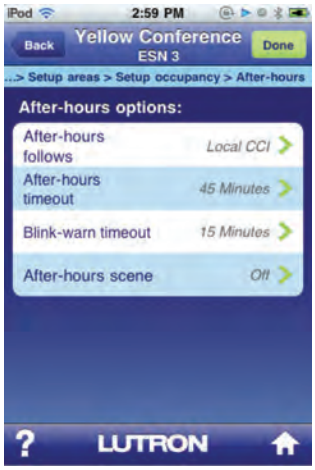
On the next screen that appears, you will see a setting called *After-Hours Follows*. Touch this option to change the setting from *Disabled* to one of the following three choices:

Local CCI – Choose this option if you want After-Hours to be triggered via the local contact closure input that is on the ESN currently being programmed. The steps on how to configure an ESN's contact closure input are described in more detail below.

Remote CCI – Choose this option if you want After-Hours to be triggered via the contact closure input of another ESN that is part of the system (e.g., an ESN that is connected to the current ESN via the QS link). Note that the remote ESN needs to have its configurable contact closure input configured for After-Hours (again, these steps are described in more detail below). If you choose this option, you will be prompted to select which ESN on the link will be starting and stopping After-Hours.

QS GRAFIK Eye® control unit – Choose this option if you have a QS GRAFIK Eye® on the link that will be manually configured to start and stop After-Hours. This configuration can be completed locally at the GRAFIK Eye® itself using the interface on the GRAFIK Eye® QS. If you choose this option, you will be prompted to select which GRAFIK Eye® QS on the link will be starting and stopping After-Hours.

Once you have selected an option other than *Disabled*, you will see a screen similar to the one shown at the right.



This screen allows you to set the following options:

After-hours timeout – This setting specifies how long the lights will remain on before the system flashes the lights and starts the blink-warn timer.

Blink-warn timeout – This setting specifies how long the lights will remain on after they were flashed to warn any occupants and before they turn off.

After-hours scene – This setting specifies which scene will be activated in the area when the blink-warn timeout has expired. This will generally be set to the *Off* scene.

Set Up Area Wizard

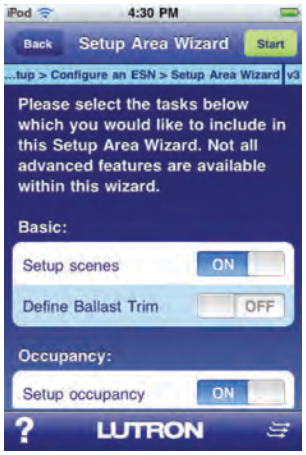
The *Setup Area Wizard* is a time saving tool that allows you to program most of the common functionality of an ESN area in an efficient step-by-step basis. This feature is recommended for installations with many areas with the same types of control.

The *Setup Area Wizard* will save data on every screen. In other words, if you quit the *Setup Area Wizard*, all of the changes you made up to that point are already saved.

Some advanced features such as After-Hours and Daylighting to Off are not available through the *Setup Area Wizard*.

Set Up Area Wizard Options Screen

The first screen of the *Setup Area Wizard* is the *Options* screen. On this screen, you can define the area options you wish to program at this time. The *Wizard* will then show you each screen that is specified on this options screen, one after the other, until the area setup is complete.



Example: you need to commission 20 exterior facing private offices, each with occupancy sensors, a Pico® wall control, and a daylighting sensor. You should select the following options to complete the programming for each area: *Setup Scenes*, *Setup Occupancy*, *Define Daylighting Sensors*, *Daylighting Rows*, *Daylighting Calibration*, and *Program QS Devices*.

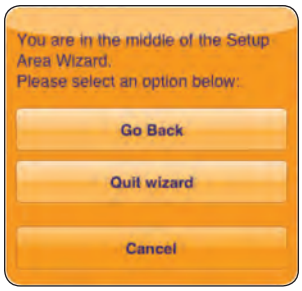
Note: Some features require other options to be enabled before becoming available. For example, you cannot enable *Daylighting Calibration* if you have not first enabled *Define Daylighting Sensors* and *Define Daylighting Rows*, as shown at the bottom right.

When you press *Start*, you must select the area that you wish to program, whether it is a new area or one that was already created. You will also be prompted to *Setup Zones/Define Ballasts*, which is required for the *Setup Area Wizard*.

Set Up Area Wizard Main Toolbar

You may have noticed that the top toolbar looks different in the *Setup Area Wizard* screens from the usual *Setup Area* screens. There are two new buttons with different functionality:

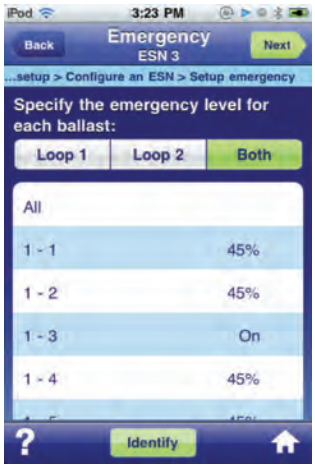
Touching the *Continue* button will change the current *Setup Area Wizard* option screen, in this case *Setup Scenes*, to the next step in configuring the area. Which screens are next depends on the list of options that were enabled.



The *Quit* button prompts you to either go back to the previous option, quit the *Setup Area Wizard* altogether, or cancel.

Set Up Emergency Levels

Certain models of ESN devices have a dedicated emergency contact closure input that is normally closed. When opened, it sends an emergency signal which will cause all ballasts/outputs on the ESN to go to their emergency levels. The emergency levels can be set by navigating to *System setup* > *Configure an ESN* > *Setup Emergency*. The *Emergency* screen should resemble the screen shown at the right.



On this screen, you can view all of the ESN outputs or ballasts. For units that control ballasts, you can view the ballasts on *Loop 1*, *Loop 2*, or *Both* loops at once.

Adjust Emergency Levels

To change the emergency level for an output or ballast, simply touch the row that corresponds to the output or ballast that you want to update. Then touch the *Next* button or the arrow that appears in the selected row on the right side. You will be taken to a screen where you can set the emergency level. If desired, you can choose a value of *Unaffected* if you don't want emergency mode to have any affect on the specified output or ballast. If necessary, you can, at any point, touch the *Identify* button at the bottom of the screen to flash the selected output or ballast. Touch *Stop* to stop flashing the selected output or ballast.

Program Devices

Overview

This section will detail how the following device types can be programmed to control the lighting (area scenes and zones) of an ESN:

- QS Keypad
- QSE-IO
- QS-IR-Eye
- QS GRAFIK Eye®
- Pico®
- QS Keyswitch

To program any of the devices above, first navigate to the *System Setup* screen and select the *Program* devices option.

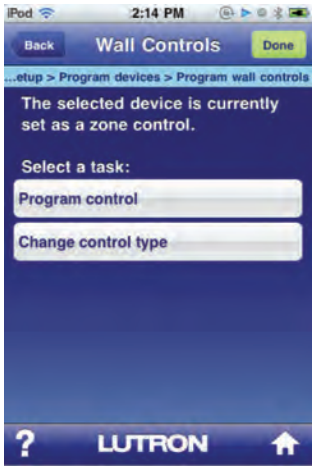
Put a Device in Programming Mode

You will be prompted to put the device that you want to program into *Programming Mode*. For the various types of devices, there are different ways to do this. The table below summarizes the methods used for putting the various device types into *Programming Mode*:

QS Keypad	Press and hold the top and bottom buttons of the keypad until the LEDs flash.
QSE-IO	Press and hold the button on the unit until the LEDs flash.
QS-IR-Eye	Point a Lutron IR transmitter at the QS-IR-Eye unit and press and hold the top and bottom buttons of the transmitter until the LED of the QS-IR-Eye device flashes.
QS GRAFIK Eye®	Press and hold the top and bottom scene select buttons on the front (lower right portion) of the GRAFIK Eye® until the LEDs flash.
Pico®	Press and hold the top and bottom button (e.g., the *On* and the *Off* buttons) of the Pico® until the LED flashes and the QSM to which the Pico® is associated beeps to indicate that it has entered programming mode. Note that you must associate the Pico® with a QSM before you can program the Pico®.
QS Keyswitch	If there is a faceplate on the QS Keyswitch, remove it with a small flat-head screwdriver. Then, press and hold the small button located on the front, beneath the keyhole, until the LED flashes.

Once the device has entered programming mode, the application will take you to the next screen. The next screen will look similar to the screen shown at the right.

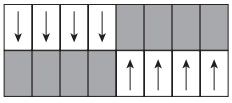
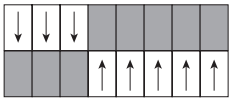
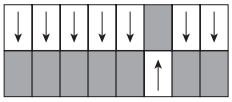
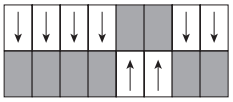
This screen will tell you how the device is currently configured. Generally, devices can be configured to select area scenes or to control one or more lighting zones from this screen; you can also perform two tasks: you can change the type or configuration of the control, and you can program the control.



Change Device Control Type

In order to change the configuration, touch the *Change Control Type* option to be taken to a screen where you can select the configuration type for the device that you are programming. Note that only configuration types that are supported by the device being programmed will be listed. For certain configuration types (e.g., *Scene Selection*), you will be prompted to set some additional information (e.g., the starting scene number).

The information below outlines the programming configuration types available for each type of device and gives a brief description of each:

QS Keypad	*Scene selection* – The keypad buttons will each select a different scene in the assigned area(s). The specified starting scene number will determine which scene each button selects. The first button will select the starting scene number, the next button will select the next scene in the sequence, and so on. *Scene + Off selection* – The keypad buttons will each select a different scene in the assigned area(s) in the same fashion as the *Scene selection* configuration type, except that the last button will select the *Off* scene. *Zone control* – Each button of the keypad can be selected individually and programmed to toggle one or more zones from any areas, as desired. For each zone assigned to a button, a programmed zone level can be specified. The button will then toggle the assigned zone(s) between the specified levels and *Off*. *Shade control* – In order to facilitate easier configuration of QS keypads, this option is available. When keypads are configured to act as Shade control keypads, they cannot be programmed using this application and must manually be assigned to the desired QS shade(s). *Panic* – This programming configuration type can only be selected for 2-button keypads. The first button starts *Panic Mode* in the area(s) assigned to the keypad, and the second button ends *Panic Mode*. When an area is in *Panic Mode*, it activates scene 16 and becomes locked. This means that it is unable to be taken out of scene 16 unless *Panic Mode* is ended. One or more areas from any ESN can be assigned to a *Panic* keypad. *Fine-tune* – This programming configuration type can only be selected for 2-button keypads. The first button acts to raise the zone(s) that have been assigned to the keypad, and the second button lowers the zone(s). One or more zones from one or more areas of one or more ESN units can be assigned to a fine-tune keypad.
QSE-IO	For the QSE-IO, the programming configuration type is set from dip switches on the IO device itself and not from this application. *Scene control* – The QSE-IO can select scenes 1 through 4 and *Off* with inputs 1 through 5, respectively. You are able to assign one or more areas to the QSE-IO. Use the following dip switch positions on the QSE-IO device:  *Zone control* – The QSE-IO can toggle assigned zones using inputs 1 through 5. You are able to select an input using the program button on the QSE-IO and then assign one or more zones to the selected input. For each individual zone, you are able to specify the desired light level when toggling the zone(s) one. Use the following dip switch positions on the QSE-IO device:  *Multi-partition control* – The QSE-IO can act as a partitioned-area control. You are able to select an input using the program button on the QSE-IO and then assign one or more areas to the selected input. Use the following dip switch positions on the QSE-IO device: Momentary  Maintained 

(continued)

QS-IR-Eye	*Scene* – The IR transmitter will select scenes in the assigned area(s) according to the template specified when choosing this configuration type. The templates correspond to the different IR transmitter types that are available. *Zone* – The IR transmitter will toggle the assigned zone(s) between *Off* and the light level specified for each zone during the programming step.
QS GRAFIK Eye®	*Scene* – GRAFIK Eye® units can select only scenes in the assigned area(s). They cannot be configured to toggle zones or perform other functions. *Timeclock* – GRAFIK Eye® units can be programmed so that remote timeclock events from the GRAFIK Eye® will select scenes in one or more areas, as assigned. This is described in more detail below.
Pico®	*Scene* – The Pico® control will activate a scene in the assigned area(s). The top button will select the specified starting scene number, the preset button actives the next scene, and the *Off* button will activate the third scene in sequential order. One or more areas can be assigned. *Scene + Off selection* – The Pico® control will activate a scene in the assigned area(s) in the same fashion as the *Scene selection* configuration type, except that the bottom button will select the *Off* scene. *Zone Control* – The Pico® control can be assigned to control one or more zones. The assigned zone(s) can be programmed to send the zones to specified desired light level. Each button can be programmed to different zones and different desired light levels. *Legacy Zone* – **This is an outdated programming type and should be used only on jobs where the device firmware is out-of-date.** The Pico® control can be assigned to control one or more zones. The assigned zone(s) will be turned to 100% when the *On* button is pressed, 0% when the *Off* button is pressed, and to the programmed light level when the *Favorite* button is pressed.
QS Keyswitch	*Scene selection* – The keyswitch action will activate a scene in the assigned area(s). The specified starting scene number will determine which scene is activated when the keyswitch is turned clockwise. The counter-clockwise position will activate the starting scene + 1. *Scene + Off selection* – The keyswitch action will activate a scene in the assigned area(s). The specified starting scene number will determine which scene is activated when the keyswitch is turned clockwise. The counter-clockwise position will activate the *Off* scene. *Zone control* – Each action of the keyswitch can be individually programmed to toggle one or more zones from any areas, as desired. For each zone assigned to an action, a programmed zone level can be specified. The action will then toggle the assigned zone(s) between the specified levels and *Off*. *Enable/Disable Occupancy* – The clockwise action of the keyswitch will enable occupancy behavior, while a counter-clockwise action will disable occupancy. This change does not change the occupancy settings, as the timeout, scenes and sensors will all be maintained. *Enable/Disable Daylighting* – The clockwise action of the keyswitch will enable daylighting behavior, while a counter-clockwise action while programming will disable daylighting. This change does not change the daylighting settings, as the daylighting rows and sensor programming will all be maintained. *Start/End After-Hours* – You can now use a keyswitch as an After-Hours trigger instead of a QSG or CCI input. In this mode, the clockwise action will enable After-Hours and begin the blink-warn depending on the After-Hours settings. A counter-clockwise action will disable After-Hours. *Panic* – The clockwise action starts *Panic Mode* in the area(s) assigned to the keyswitch, and the counter-clockwise action ends panic mode. When an area is in *Panic Mode*, it activates scene 16 and becomes locked. This means that it is unable to be taken out of scene 16 unless *Panic Mode* is ended. One or more areas from any ESN can be assigned to a panic keyswitch. *Fine-tune* – The clockwise action acts to raise the zone(s) that have been assigned to the keyswitch, and the counter-clockwise action lowers the zone(s). One or more zones from one or more areas of one or more ESN units can be assigned to a fine-tune keyswitch.

Once you have selected the desired programming type, you are ready to program the control. Touch the *Program Control* button to continue.

(continued)

Program Devices

Depending on the programming type that you have selected, the programming method will vary slightly. The following series of tables outlines the basic programming method to be used for each combination of device and programming type.

QS Keypad

Scene Selection	Select one or more areas from any ESN to assign to the control. The control will then select corresponding scene numbers in each of the areas assigned. For example, if you are programming a QS keypad with five buttons and you specify a programming type of *Scene Selection* along with a starting scene number of 2, the five buttons will select scenes 2, 3, 4, 5, and 6, respectively. If you assign two areas to this control, the first button will select Scene 2 in both areas, the second button will select Scene 3 in both areas, and so on.
Scene + Off Selection	Select one or more areas from any ESN to assign to the control. The control will then select corresponding scene numbers in each of the areas assigned. For example, if you are programming a QS keypad with five buttons and you specify a programming type of *Scene + Off Selection* along with a starting scene number of 4, the five buttons will select scenes 4, 5, 6, 7, and *Off*, respectively. If you assign two areas to this control, the first button will select Scene 4 in both areas, the second button will select Scene 5 in both areas, and so on.
Zone Control	When this programming mode is selected and you move to the *Program Control* screens, you will be notified that the first button of the keypad is currently selected for programming. This will be indicated on the keypad by the illumination of the corresponding button's LED. The screen will also tell you which button number is currently selected. Each button can be selected and programmed, one at a time, by pressing the desired button on the keypad. The screen will update to tell you which button is currently selected. In order to program a button, you will assign one or more zones from one or more areas of one or more ESN units. For each zone that you assign, you will be asked to specify the desired light level for that zone. When you have finished programming the control, each button will be programmed to toggle one or more assigned zones to the desired light level that you specified for each zone. For example, the first button might toggle Zone A to 50% and Zone B to 25%. The second button might toggle Zone C to 85%. The third button might toggle Zone A to 25% and Zone D to 100%. When each button is pushed, it will toggle the specified lights *On* (unless they are already on). When the button is pushed again, the lights will turn *Off*.
Shade Control	When a keypad has been set to the *Shade Control* programming type, it cannot be programmed from the setup application. Shades must be assigned to the keypad manually, using button-press combinations directly on the keypad itself.
Panic	Select one or more areas from any ESN to assign to the control (note that only 2-button keypads support the *Panic* feature). The first button starts *Panic Mode* in the area(s) assigned to the keypad, and the second button ends *Panic Mode*. When an area is in *Panic Mode*, it activates scene 16 and becomes locked—this means that it is unable to be taken out of scene 16 unless *Panic Mode* is ended.
Fine Tune	Select one or more zones from one or more areas of one or more ESN units to assign to the control (note that only 2-button keypads support the *Fine-Tune* feature). The first button acts to raise the zone(s) that have been assigned to the keypad, and the second button lowers the zone(s).

(continued)

QSE-IO

Scene Control	Select one or more areas from any ESN to assign to the control. The control will then select scenes 1 through 4 and *Off* in each of these areas with the five contact-closure inputs that are available, respectively. For example, if two areas are assigned to the QSE-IO device, input 1 will select scene 1 in both areas, input 2 will select scene 2 in both areas, and so on.
Zone Control	When this programming mode is selected and you move to the *Program Control* screens, you will be notified that the first input of the QSE-IO is currently selected for programming. Each input can be selected and programmed, one at a time, by quickly pressing the *Program* button on the QSE-IO to toggle through the five available inputs. The screen will update to tell you which input is currently selected. In order to program an input, you will assign one or more zones from one or more areas of one or more ESN units. For each zone that you assign, you will be asked to specify the desired light level for that zone. When you have finished programming the control, each input will be programmed to toggle one or more assigned zones to the desired light level that you specified for each zone. For example, the first input might toggle Zone A to 50% and Zone B to 25%. The second input might toggle Zone C to 85%. The third input might toggle Zone A to 25% and Zone D to 100%. When each input is activated, it will toggle the specified lights *On* (unless they are already on). When the input is activated again, the lights will turn *Off*.
Multi-Partition Control	When this programming mode is selected and you move to the *Program Control* screens, you will be notified that the first input of the QSE-IO is currently selected for programming. Each input can be selected and programmed, one at a time, by quickly pressing the *Program* button on the QSE-IO to toggle through the five available inputs. The screen will update to tell you which input is currently selected. In order to program an input, you will assign two or more areas from any ESN. When a given input is activated, the areas associated to that input will act in unison (as if the partitions are open and the areas are grouped together into one larger area). This means that if a scene is selected in one of the areas (via a keypad, for example), the same scene will become active in the other areas. When the input is de-activated, the areas associated to that input will act independently (as if the partitions are closed and the areas are separated back into individual areas). In this case, a scene selected in one of the areas will not affect the other areas.

QS-IR-Eye

Scene	Select one or more areas from any ESN to assign to the QS-IR-Eye. The IR transmitter will then select scenes in each of these areas according to the template that was specified when the *Scene* programming type was selected. For example, if you specified the *4 Buttons + Off* template along with a starting scene number of 1, the transmitter is assumed to be a five-button transmitter and will select scenes 1, 2, 3, 4, and *Off* with each of the five buttons, respectively, in each of the areas assigned to the QS-IR-Eye.
Zone	When this programming mode is selected, it is assumed that you will be using a *Favorite* button style of transmitter. You will be prompted to select one or more zones to assign to the QS-IR-Eye. For each zone, you will be prompted to specify the desired light level for that zone. When the *Favorite* button on the transmitter is pressed, the assigned zones will go to the light levels specified for each zone. The *On* button will turn all of the assigned zones on to 100% and the *Off* button will turn all of the assigned zones off.

(continued)

QS GRAFIK Eye®

Scene	Select one or more areas from any ESN to assign to the control. The control will then select scenes 1 through 4 and off in each of the areas assigned. For example, if you are programming a QS GRAFIK Eye®, the five buttons will select scenes 1, 2, 3, 4, and *Off*, respectively. If you assign two areas to this control, the first button will select *Scene 1* in both areas (as well as the GRAFIK Eye® *Scene 1*), the second button will select *Scene 2* in both areas (as well as the GRAFIK Eye® *Scene 2*), and so on. A QS GRAFIK Eye® cannot be programmed to select different starting scene numbers. They also cannot be programmed to do zone-based programming. When the QS GRAFIK Eye® is programmed to affect ESN areas by selecting scenes, the GRAFIK Eye® will also continue to activate its own local scenes, as noted above. Note that any scene selection activity performed on the GRAFIK Eye® will select the corresponding scene in the assigned area(s), including local timeclock-based scene activations as well as button presses at the GRAFIK Eye®.
Timeclock	To program remote timeclock events on a GRAFIK Eye®, follow these steps. Remote timeclock events are events programmed into the GRAFIK Eye® timeclock which do not affect the GRAFIK Eye® itself. **BEGIN QSG STEPS** **1** Place the QSG into programming mode by holding the top and bottom buttons on the QSG keypad. **2** Create a Remote Timeclock Event using the screen and buttons under the lid of the QSG. **3** Follow the on-screen instructions to specify the time, recurrence, and event type of the particular remote Timeclock event. **4** To assign the events to specific areas on an ESN, put the QSG into Timeclock Programming mode by selecting “Program Remote”, and the event you wish to program. Each event of every day needs to be assigned individually. **BEGIN IPOD APP INSTRUCTIONS** **5** Go to the Energi Savr Node™ application and navigate to the “Program QS Devices” screen. **6** The application will now display the programming mode as “Timeclock Control”. **7** Assign the Timeclock event to areas by pressing “Program control”. **FINAL QSG STEP** **8** Take the QSG out of programming mode by pressing “Menu”, then holding the top and bottom buttons on the QSG keypad.

(continued)

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QS GRAFIK Eye® (continued)

External Zone Control	In order to program external zones on a Grafik Eye®, you will need to follow the steps below. External zones are zones that are controlled by the Grafik Eye®, but are mapped to light outputs on an ESN. An external zone will appear as one of the zones represented by LEDs and *Raise/Lower* buttons on the Grafik Eye®. You can assign an external zone to any ESN zone, including switching and 0-10s the same way you would assign a zone controller. 1. First put the QSG into programming mode using the top and bottom button on the right side keypad. 2. Go to *Zone Setup/Load Type*, and set the load type of the desired zone to *Remote Digital*. 3. Go to the *Remote Zone* menu in the *Zone Setup* menu. 4. Now using the HHD, navigate to the *Program QS Devices* screen. 5. The HHD will detect a QSG in programming mode with *Type Bargraph Control*. Select the only option, *Program This Control*. 6. Assign the desired zone by selecting it and clicking *Add*. **Note:** You can assign *only* one zone to one zone load on the QSG, if you try to assign multiples, the previous assignment will be removed. 7. Take the QSG out of programming mode.

Pico®

Scene	Select one or more areas from any ESN to assign to the control. The Pico® will activate a scene in the assigned area(s). The top button will select the specified starting scene number, the *Preset* button actives the next scene, and the *Off* button will activate the third scene in sequential order.
Scene + Off	Select one or more areas from any ESN to assign to the control. The Pico® will activate a scene in the assigned area(s) in the same fashion as the *Scene Selection* configuration type, except that the bottom button will select the *Off* scene.
Legacy Zone	Select one or more zones from any area on any ESN to assign to the control. For each zone being assigned, you will be prompted to specify an individual light level. The assigned zone(s) will be turned to 100% when the *On* button is pressed, 0% when the *Off* button is pressed, and to their individually programmed light levels when the *Favorite* button is pressed.
Zone Control	First select the button you would like to program by physically pushing it on the Pico® controller. Then select one or more zones from any area on any ESN to assign to control. For each zone being assigned, you will be prompted to specify an individual light level, which will be activated when the currently active button is pushed. Each Zone is automatically added to all of the buttons, but it is possible to make the zones *Unaffected* if you wish to have different buttons affect different zones.

(continued)

QS Keyswitch

Scene Selection	Select one or more areas from any ESN to assign to the control. The clockwise control will then activate the selected scene in each of the areas assigned. A counter-clockwise turn will activate the starting scene + 1.
Scene + Off Selection	Select one or more areas from any ESN to assign to the control. The clockwise control will then activate the selected scene in each of the areas assigned. A counter-clockwise turn will activate the off scene.
Zone Control	Select one or more zones from any area on any ESN to assign to the zone toggle keyswitch. For each zone that you assign, you will be asked to specify the desired light level for that zone. When you have selected a zone to assign to the control, you will have to specify the desired light level. A clockwise action will toggle the assigned zones to the desired light level, while a counter-clockwise turn will toggle the zones to *Off*.
Enable/Disable Occupancy	Select one or more areas from any ESN to assign to the control. The clockwise action enables occupancy in the area(s) assigned, and the counter-clockwise action disables occupancy.
Enable/Disable Daylighting	Select one or more areas from any ESN to assign to the control. The clockwise action enables daylighting in the area(s) assigned, and the counter-clockwise action disables daylighting.
Start/Stop After Hours	Select one or more areas from any ESN to assign to the control. The clockwise action will start or enable After-Hours mode in the area(s) assigned and properly programmed to use After-Hours. The areas will start the *blink-warn* process if properly configured. The counter-clockwise action ends After-Hours.
Panic	Select one or more areas from any ESN to assign to the control. The clockwise action starts *Panic Mode* in the area(s) assigned, and the counter-clockwise action ends *Panic Mode*. When an area is in *Panic Mode*, it activates scene 16 and becomes locked. This means that it is unable to be taken out of scene 16 unless *Panic Mode* is ended.
Fine-Tune	Select one or more zones from any area from any ESN to assign to the control. The clockwise action raises the assigned zone(s), and the counter-clockwise action lowers the zone(s).

Take Device Out of Programming Mode

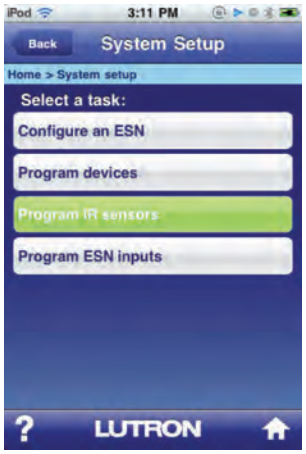
Once you have finished programming the control as desired, you can take the control back out of *Programming Mode* using the same method that you used to enter *Programming Mode* (these methods are described at the beginning of this section for the various types of controls). The system will detect that you have done this and a confirmation will appear on the screen to indicate that the control you were working with is no longer in *Programming Mode*.

If you attempt to back out of the *Programming* screens before taking the control out of *Programming Mode*, the application will prompt you to first take the control out of *Programming Mode*.

Program IR Sensors

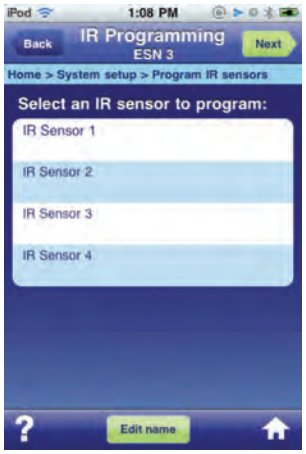
This section will detail how IR sensors that are wired to the ESN, to EcoSystem® ballasts controlled by an ESN, or to a QSM can be programmed to control the lighting (area scenes and zones) of an ESN. Note that EcoSystem® wall controls such as the CC-4BRL are covered in this section as well, since they are wired to the same IR sensor inputs to which traditional IR sensors are connected. Also note that QS-IR-Eye controls are programmed differently, as described in the previous section.

To begin, first navigate to the *System Setup* screen and select the *Program IR Sensors* option (shown at near right).



The next screen that appears will present you with a list of the available devices that might have IR sensors connected (such as ESN or QSM devices). Select a device from this list and touch *Next* to see the sensors assigned to the selected device (as shown at far right).

After you select a device, you will see a list of the IR sensors connected to that device, similar to the image shown at right bottom.



Identify IR Sensors

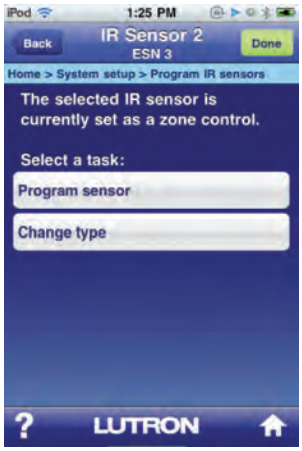
To identify IR sensors, simply point an IR transmitter at the desired sensor and activate the transmitter. Signal indicator bars will momentarily appear on the screen in the row that corresponds to the sensor that received the IR signal. If you are using EcoSystem® wall controls, press any button on the EcoSystem® wall control (such as the *Raise or Lower* button) and look for the signal indicator bars to appear for one of the rows on the screen shown above.

Rename an IR Sensor

Once you have identified the sensor, use the *Edit Name* button to give it a name that will help you to remember which sensor is which (such as “Conf Room 201 IR”).

When you are ready to program the sensor, select the corresponding row and touch *Next* or touch the arrow that appears to the right of the sensor’s name.

Sensor programming is very similar to device programming. There are two options that exist when programming a sensor: you can change the programming configuration type and you can program the sensor. These are clearly indicated on the *Sensor Programming* screen shown at right.



Change IR Control Type

To change the programming configuration type, touch the *Change Type* button. You will see two options: *Scene* and *Zone*.

The *Scene* programming type will allow you to assign one or more areas from one or more ESN devices to the IR sensor. Transmitters will then select scenes in the assigned areas based on the type of transmitter being used. For example, a *Favorite* button transmitter having *On* and *Off* buttons plus an orange *Favorite* button will select Scene 1 with the *On* button, Off with the *Off* button, and Scene 2 with the *Favorite* button.

The *Zone* programming type will allow you to assign one or more zones on one or more ESN devices to the IR sensor. For each zone that you assign, you will be able to specify a favorite light level for that zone as part of the assignment process. Note that only certain remote types support the favorite level feature.

Assign Areas or Zones to an IR Sensor

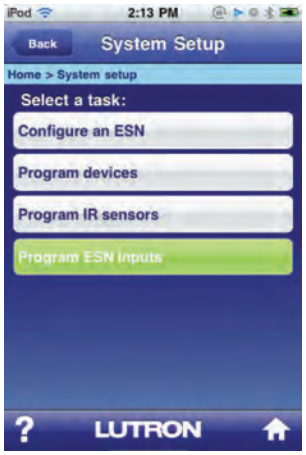
Once you have specified the programming configuration type, touch the *Program Sensor* button to assign either areas or zones to the sensor as discussed above.

Program ESN Inputs

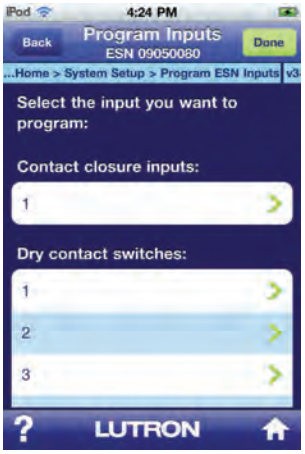
This section will detail how to program the contact inputs available on certain ESN models. Note that some ESN models have a dedicated emergency input; this input is not programmable and is used only to send the ESN into *Emergency Mode* (see the *Set Up Emergency Levels* entry, p54). Some ESN models have an additional configurable contact-closure input that can be programmed to achieve various functions.

Program a Configurable Contact Closure Input

In order to program the configurable contact-closure input, select the *Program ESN Inputs* option from the *System Setup* screen shown at near right.



You will be prompted to select an ESN for which you would like to configure the contact closure input. Once you have selected an ESN, you will see a screen listing the available programmable inputs, similar to the image shown at far right.



Select the contact closure input that you would like to program and you will automatically be taken to the next screen. Depending on how the input is currently programmed, you may see one of four different screen configurations. These correspond to the four different programming types available for a configurable contact-closure input:

- ***Not Programmed*** – This indicates that the input is not programmed to perform any function and will not be used.
- ***After-Hours*** – This indicates that the input will be used to start and stop *After-Hours Mode*.
- ***Zone Controller*** – This option indicates that input signal will toggle specified zones to programmed levels.
- ***Scene Select*** – This indicates that the input will be used to select a scene in one or more areas.
- ***Load Shed*** – This indicates that the input will be used to *Load Shed* the lighting controlled by the ESN. Load shedding is a feature that will be described in more detail later.

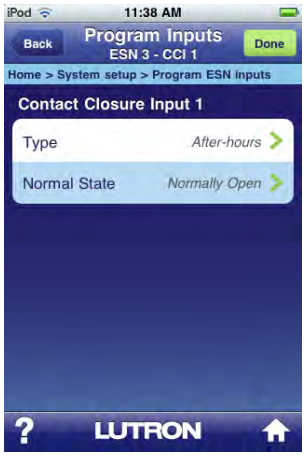
Regardless of which option is currently assigned for the input that you selected, the first option on the input programming screen will always allow you to change the input programming type. Now we will look at each of the input programming types in more detail.

Configurable CCI Programming Type: *Not Programmed*

This option should be used if you don't want the input to have any affect in the system. When this input programming type is specified, the input programming screen will look similar to the image shown at right.

Configurable CCI Programming Type: *After-Hours*

This option should be used when you would like the input to notify one or more areas of one or more ESNs when *After-Hours Mode* is starting and stopping. Note that a third party timer or similar device is needed to connect to the contact-closure input so that After-Hours can be started at the desired start time and stopped at the desired ending time each day.



After setting the CCI to After-Hours, you must go into the *Setup Occupancy* menu for an area where you want After-Hours behavior to be in effect. For each area, you can choose the input or device that will start and stop After-Hours in that area. An area on one ESN can be programmed to listen to the After-Hours input configured on another ESN, provided that both ESN devices are on the same QS link. The details of how After-Hours can be configured on an area-by-area basis is described in more detail in the *After-Hours* section of this document.

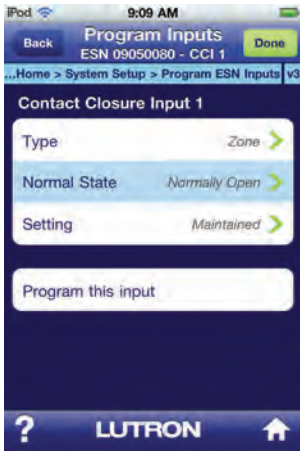
Note that for the *After-Hours* input programming type, the contact-closure input behavior is assumed to be *Maintained*. This means that the contact must be held in the non-normal state for the duration of the time that After-Hours is desired to be active.

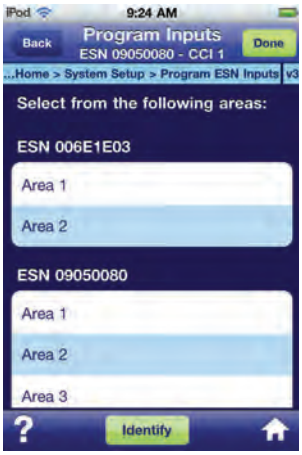
After-Hours CCI: Normally Open/Normally Closed
Note that this input programming type allows you to specify whether the input is normally open or normally closed. If the input is normally open, then closing the input starts After-Hours and opening the input again ends After-Hours. Conversely, if the input is normally closed, opening the input would start After-Hours and closing the input again would end After-Hours.

Configurable CCI Programming Type: *Zone Controller*

This option should be used if you want to program the input to toggle certain zones between their current state and a specified level.

You'll notice that there are several options that appear on the *Program Input* screen (at right) when *Zone* input programming type has been selected. Some of these options are detailed above such as *Setting* and *Normal State*.





Program This Input
Touch *Program This Input* in order to specify the zones and zone levels that this CCI will trigger. This feature is similar to assigning keypads or Pico® wireless controls, as the HHD will show you a list of ESN Areas. Touch any area and you will see a list of the zones in that area.

Once you select a zone, the screen will change to a *Slider* view to choose the new zone level. To unassign a zone from the CCI, select the zone and press *Remove* on the bottom toolbar.

Configurable CCI Programming Type: *Scene Select*

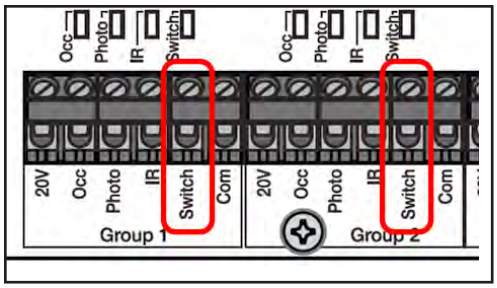
This option should be used to program the input to activate a scene on specified areas. For more information on scene selection refer to the section titled Program Devices: Change Control Type.

Configurable CCI Programming Type: *Load Shed*

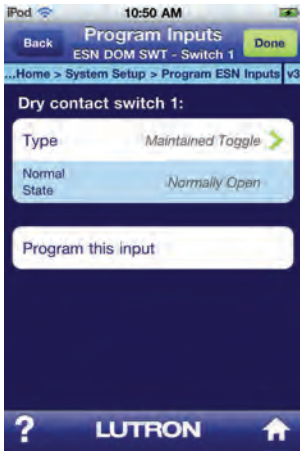
This option should be used to program the input to toggle load shedding on the system. Load shedding saves money by decreasing energy consumption during peak hours.

Program a Dry Contact Closure Input

A dry contact closure is a type of input that can be found on ESN 0-10 and ESN SoftSwitch® devices. The inputs are labeled *Switch* and can be found on each group of wire landings.



To program an ESN dry contact input, select one of the four inputs from the *Program Inputs* screen. This will take you to the *Program Dry CCI* screen as shown at right.



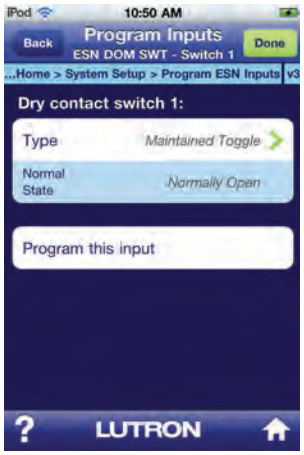
Dry CCI:
Adjust type

There are four different dry contact types available that correlate to the type of switch used and the desired behavior.

Type	Desired Function	Switch Type
Maintained Toggle	*Contact Closure* or *Contact Open* will toggle the state of assigned zones between a preset and *Off*.	• Single-pole or 3-way toggle switch • Alternates between two different positions
Momentary Toggle	*Contact Closure* or *Contact Open* will toggle the state of assigned zones between a preset and *Off*.	• Push-button or center-off toggle switch • Always returns to original state
Maintained Dual Action	*Contact Closure* will turn assigned zones on to preset level. *Contact Open* will turn assigned zones *Off*.	• Single-pole or 3-way toggle switch • Alternates between two different positions
Momentary Single Action	*Contact Closure* will turn assigned zones on to preset level.	• Push-button or center-off toggle switch • Always returns to same position

Dry CCI:
Normal State

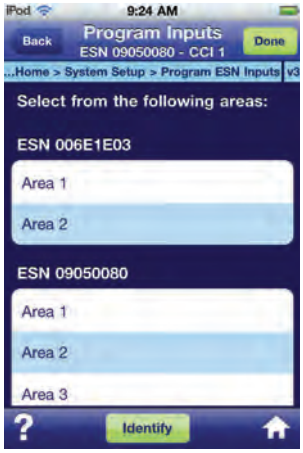
The screen at the right shows you the expected default state of the electrical input on the device. The only supported option is *Normally Open*.



Dry CCI:
Program This Input

Touch *Program This Input* in order to specify the zones and zone levels that this Dry CCI will trigger. This feature is similar to assigning keypads or Pico® wireless controls, as the HHD will show you a list of ESN Areas. Touch any area and you will see a list of the zones in that area.

Once you select a zone, the screen will change to a *Slider* view to choose the new zone level. To unassign a zone from the CCI, select the zone and press *Remove* on the bottom toolbar.



Dry CCI Troubleshooting

Q – "No response received" message appears when I click on the Dry Contact for programming. What is happening?

A – This would occur if you're using an older version of either the ESN with the dry CCI or the master ESN that is connected to the router. Any software version below 5.0 will not support Dry CCI.

Q – The system will not allow me to set the value of a zone in Dry CCI to 0% or *Off*. Why?

A – Currently, setting values of 0% or *Off* is allowed only with type *Momentary Single Action*. The other three types already include *Off* as part of the *Defined* action.

Maintenance Guide

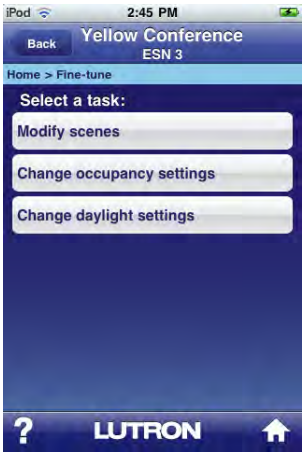
Overview

The various parts in this section can help you to understand how to perform the following maintenance and advanced programming tasks:

- Fine-tune existing area settings (scene levels, daylighting settings, and occupancy settings)
- Replace failed ballasts
- Season lamps
- Configure advanced ballast settings
- Reset devices
- Change ESN password
- View/Edit device properties
- Back Up/Restore/Clone device data
- Update device firmware
- Manage handheld device data

Fine-Tune Existing Area Settings

Fine-Tune allows you to adjust scene levels, occupancy settings, and/or daylighting settings of an existing area. You will be presented with a list of ESN devices that are available on the QS link. Select an ESN device and touch *Next* to see a list of the areas on the ESN. Select an area and touch *Next* again to see the fine-tuning options that are available. You will see a screen similar to the one shown at right.



From here, you can modify scenes, change occupancy settings, and change daylighting settings using screens that are identical to the screens used to set up new areas, which are described in detail in the *Commissioning Guide* portion of this manual.

Replace Failed Ballasts

Occasionally, you may find it necessary to replace one or more failed ballasts. This applies only to ESN devices that control digital EcoSystem® or DALI® ballasts. When a ballast fails and is removed and replaced with a brand-new ballast, the new ballast will not function as part of an area, zone, or daylighting row until a replacement procedure has been followed.

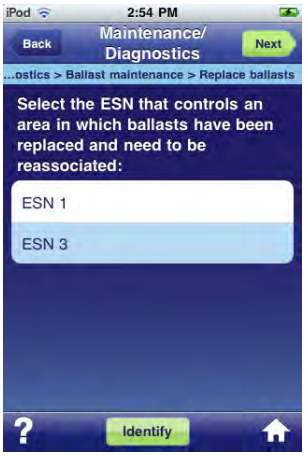
Replace a Single Ballast

When a single ballast on an ESN fails and is replaced, the ESN is able to detect that one ballast has failed and one new ballast is present on the link. In this case, the replacement happens automatically and nothing further needs to be done.

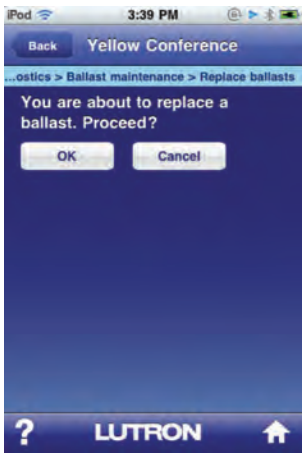
Replace Multiple Ballasts

When more than one ballast has failed and is replaced, the ESN cannot automatically perform the replacement, since it does not know which new ballast should be given which address and which configuration. In this instance, you will need to use the *Replace Ballasts* feature of the application.

To use the *Replace Ballasts* feature, **navigate to the *Replace Ballasts* screen…**
Home > Maintenace/Diagnostics > Ballast Maintenance > Replace Ballasts



You will be taken through a series of steps that will help to identify which new ballast should replace a specified missing ballast. First, you need to select an ESN and then an area in which ballasts were replaced. The system will then show you a list of the new ballasts that are detected on the system. Select each new ballast, one at a time, until the ballast you would like to replace is flashing. Once a ballast is selected, the system will check to see if it needs more information before it can finalize a replacement. If only one ballast from the ESN and area that you specified is missing, the replacement can happen right away. If more than one ballast is missing, the system may ask you to further indicate the zone and/or daylighting row to which the new ballast should belong. Once you have followed the necessary steps and the system knows which missing ballast the selected new ballast should replace, the replacement will be performed. You will be asked to confirm the replacement on a screen similar to the one shown at right.



When you touch *OK*, the replacement will occur. Repeat for all replaced ballasts.

Season Lamps

When new fluorescent lamps are installed, a process known as lamp seasoning is often used to ensure that the lamps last as long as possible. Lamp seasoning involves allowing the lamps to burn-in for up to 100 hours by remaining at high-end (full brightness) without being dimmed. Once this seasoning period is complete, the lamps will perform better when dimmed and will last longer than if they had not been seasoned.

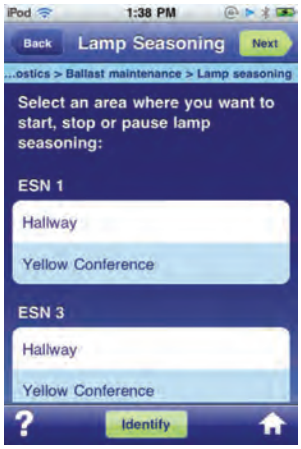
Start, Pause, or Stop Lamp Seasoning

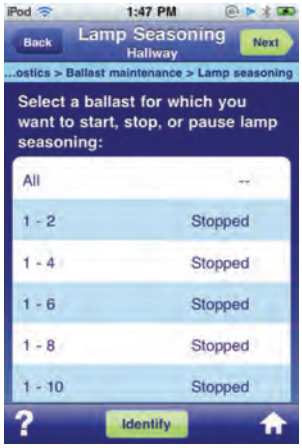
Using the application, you can start, pause, or stop lamp seasoning for individual ballasts or for an entire area at once. When starting lamp seasoning, you can specify the number of hours for which you want the lamps to be seasoned. The system will ensure that the lamp(s) are not permitted to dim during this period. They can still be switched on and off, as this is not detrimental to the lamp-life or the seasoning process. The system will take into account any time during which the lamp(s) are not on and will not count this as time spent in seasoning—only time elapsed when the lamps are on will decrement the system's counter. If dimming is absolutely required before the lamp seasoning timer has elapsed, lamp seasoning can be paused and resumed later, or cancelled altogether.

To use this feature, start at the *Home* screen and navigate to *Maintenance/Diagnostics*. From there, navigate to *Ballast Maintenance* and then select *Lamp Seasoning*. You will see a screen similar to the one shown at near right.

When you select an area, the application will query the system for the current lamp seasoning status and once the information is available, you will see a screen similar to the one shown at far right.

From here, you can either select an individual ballast and touch *Next* to update the lamp seasoning status, or you can select *All* at the top of the list to update the lamp seasoning status for all lamps in the area.





Configure Advanced Ballast Settings

Certain models of ESN units that control digital ballasts allow the configuration of some advanced ballast properties. Note that these properties represent advanced settings inside of the digital ballasts and it is recommended that you do not make changes unless you have been advised to do so by Lutron® engineers or technicians. Making unsupported changes can adversely affect the performance of your system.

High-End Trim – This setting determines the brightest level that the ballast will be permitted to achieve. For example, if you set a high-end trim of 80%, the ballast will never be brighter than an absolute value of 80% intensity. The 1-to-100 scale used elsewhere will be considered to be evenly spaced between low-end trim and high-end trim. Thus, commanding the ballast in our example to go to 100% would in reality set it to 80%.

Note: The High-End trim value must always be greater than the Low-End trim value.

Low-End Trim – This setting determines the lowest level—other than *Off*—that the ballast will be permitted to achieve. For example, if you set a low-end trim of 10%, the ballast will never be dimmer than an absolute value of 10% intensity, unless it is turned off. The 1-to-100 scale used elsewhere will be considered to be evenly spaced between low-end trim and high-end trim. Thus, commanding the ballast in our example to go to 1% would in reality set it to 10%. Note that low-end trim does not account for the *Off* level. Ballasts with low-end trim settings above 0% can still be commanded to 0%, or turned off. See *Chicago Setting*, below, if you want to set a low-end value that does not allow the ballast to turn off.

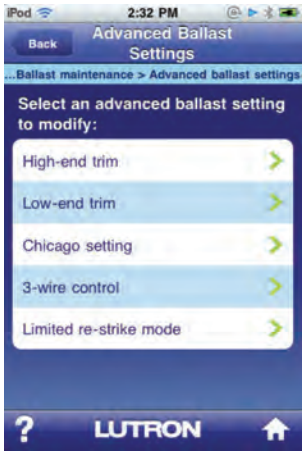
Note: The Low-End trim value must always be less than the High-End trim value.

Chicago Setting – This setting is similar to Low-End trim in that it determines the lowest level that the ballast will be permitted to achieve. The difference is that Chicago setting does account for the *Off* value. In other words, if you have a Chicago setting greater than 0%, the ballast will never be able to be turned off.

3-Wire Control – This setting allows you to enable or disable 3-wire control for EcoSystem® ballasts on a ballast-by-ballast basis. 3-wire Control is a feature in EcoSystem® ballasts where switched hot, dimmed hot, and neutral wires are run to the ballasts. A dimmed hot signal from a standard Lutron® dimmer 3-wire can be used by the ballast to provide dimming of the lamps. This allows a standard slide or rotary dimmer to provide dimming of the EcoSystem® ballasts. Occasionally, it is desirable to disable 3-wire control when no dimmers are connected because in certain environments, noise on the dimmed hot line can cause the ballast intensity to fluctuate. Disabling 3-wire control causes the ballast to stop listening for dimming signals on the dimmed hot line.

Limited Re-Strike Mode – This setting differs from the other settings in that it can be set for only an entire ESN (and not on a ballast-by-ballast basis). Also, this setting only applies to EcoSystem® ESN units. This setting has two values: *enabled* and *disabled*. If limited re-strike mode is enabled, the ballast will attempt to strike the lamp(s) only 3 times in a row before stopping. If limited re-strike mode is disabled, the ballast will continually try to strike the lamps, attempting this every 6 seconds or so. Enabling limited re-strike mode can help to decrease the annoyance of repeated flickering re-strike attempts when the ballast is not able to strike the lamps because of poor lamp quality or lamp end-of-life.

To use this feature, start at the Home screen and navigate to *Maintenance/Diagnostics*. From there, navigate to *Ballast Maintenance* and then select *Advanced Ballast Settings*. You will see a screen similar to the one shown at right.



From here, you can navigate to the desired setting and make the required changes. If enabled, the ballast may need to be power-cycled after the lamps are replaced.

Advanced Ballast Settings Troubleshooting

Q – The application won't let me set a trim value on my ESN EcoSystem®. It says there are values that are not yet initialized at the ESN. What does this mean?

A – Every digital ballast has a specific maximum and minimum dimming level that it cannot exceed. When you power-on the system, the processor needs to communicate with the ballasts to determine the possible dimming range. Only after the possible dimming range is collected can you set the low-end and high-end trim.

This process takes time and needs to occur whenever ballasts are addressed. Try again after waiting for a half hour. If you are still having the same problem, then check the wiring of the ballasts. If there is a ballast that is addressed in the system but not currently connected to the E1/E2 link, it may not be able to communicate the maximum and minimum values to the processor.

Q – The application won't let me set a low-end trim value larger then the current high-end trim value. Why is that?

A – The definition of high-end and low-end trim states that the trim will reduce the dimming range to all levels between low-end and high-end. If low-end is equal or greater then high-end then there would be no possible dimming values.

Lamp Diagnostics

Certain ESN systems contain digitally addressable ballasts. These ballasts have internal software that can keep track of a ballast's error status. When a light isn't turning on in a space, there are multiple possible causes and at times, it is difficult to isolate and identify the issue.

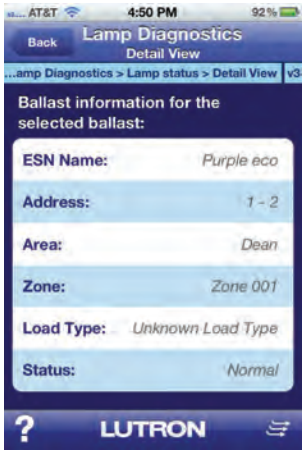
This new tool will query and report the ballast error status for all of the connected digital ballasts on any ESN.

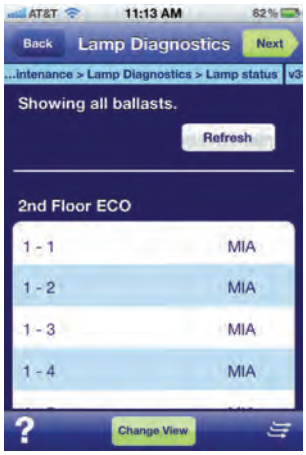
Click on *Lamp Diagnostics* to see a list of connected ESNs. Select the ESN that contains the ballasts you wish to view and touch *Next*. If you do not know which ESN you are trying to troubleshoot, use the *Identify* button to find out which lights are on which device.

Ballast List

You will now see a list of all of the ballasts with non-normal status (see screen at near right). To view all ballasts, touch *Change View*, and select *All Ballasts*.

Touching the *Refresh* button will query the system for the necessary ballast information in order to report it to you.





Ballast List Details

To view the details of a ballast on this screen, shown at far right, select the specific ballast and touch *Next*.

Error Codes

Each different error code signifies a different state. We will not go into detail about each error state, only the ones that are most common:

- ***MIA*** means that the system cannot find a ballast at that specific address. This may occur if the ballast was not connected or if the ballast has lost power.
- ***Lamp Failure*** means that the lamps are not behaving as expected. This may occur if the lamp was removed, broken, or has simply expired.

If you are receiving any other error code or need more information, please call Technical Support.

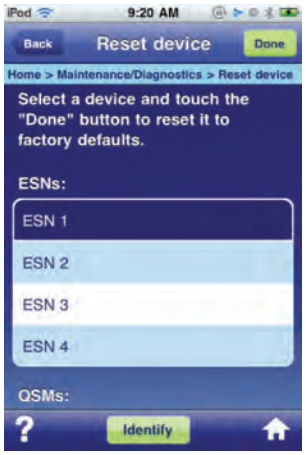
Reset Devices

At times, it may be necessary to reset one or more of the devices on the system to factory defaults. Although this is generally not needed, there are some cases when you might want to do this. Some examples would be:

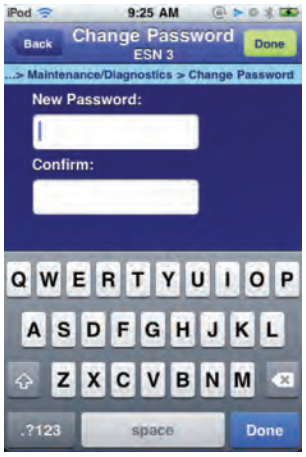
- You are moving a device from one part of a system to another (e.g., re-purposing the device). Before re-programming it for its new purpose/location, you should reset the device in order to ensure that all previous programming is erased.
- A device is not functioning as expected and the programming cannot be viewed or verified using the application. Assuming that you are familiar with how to re-program the device, you may decide to reset it to factory defaults to clear any problems and then re-program the device so that it works correctly.

Note that resetting a device *will* cause a portion of your system to stop working until the device can be reprogrammed. If the device is working and/or you do not know how to re-program it, it is advised that you contact Lutron® Technical Support before attempting to reprogram it.

To use this feature, start at the *Home* screen and navigate to *Maintenance/Diagnostics*. From there, navigate to *Reset Device*. You will see a screen similar to the one shown at right.



From this screen, you can select one or more devices to reset. When a device is selected, it will appear with a check mark to the left of its name. Once you have selected the devices you wish to reset, press *Next* in the top-right portion of the screen. It may take a few minutes before the reset is complete and the devices are ready for programming again.



Note that resetting an ESN will cause all of the programming on that ESN to be erased. All areas, zones, scene programming, occupancy configuration, and daylighting settings will be lost.

Change ESN Password

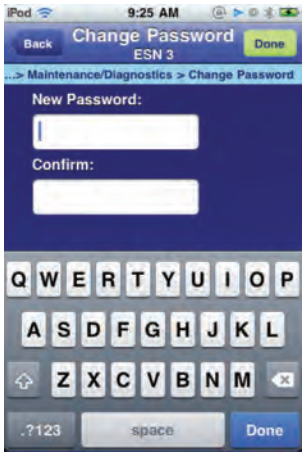
Reset ESN Password Manually

In the event that you forget your current password, resetting your password manually is useful because it does not require using the application. To use this method to reset your password, perform the following steps:

- For the ESN Ethernet Programmer, use the *Program* button. For DALI® or EcoSystem® ESN units, use the *Test*, *Link 1*, and *Link 2* buttons simultaneously.
- Press and hold the button(s) for 10 seconds.
- Release the button(s) for 2 seconds.
- Press and hold the button(s) for 10 more seconds.
- The password should be reset. When attempting to reconnect to the unit from the application, you should be prompted to specify a new password (you will have to enter it twice for confirmation).

Reset ESN Password Using the Application

In order to reset your password from the application, start at the *Home* screen and navigate to *Maintenance/ Diagnostics*. From there, navigate to *Change Password*. You will see a screen similar to the one shown at right.



Enter the new password twice in order to confirm that you typed it correctly and touch the *Done* button when you are finished. The new password will be saved.

Note that only Ethernet-enabled ESN devices (such as the DALI®, EcoSystem®, and ESN Ethernet programmer) have password capability.

0-10 and Switching units, which cannot be directly accessed via Ethernet, do not need password protection. Also note that once you have successfully logged in to a given ESN unit, you will be able to gain access to any other devices on the same QS link (including other ESN devices, even if they have different passwords).

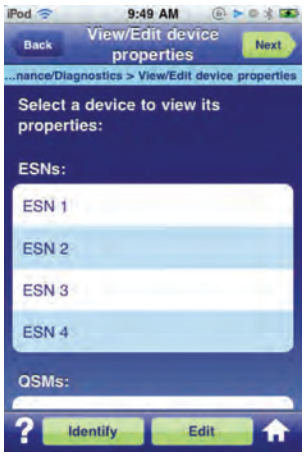
Change Password Troubleshooting

Q – The application is not accepting my new password!
A – Make sure the password is between 1 and 7 characters and does not contain any spaces.

View/Edit Device Properties

There may be times when you need to view various properties of one or more devices in the system. You may need to check firmware versions, view certain IP (Ethernet) settings, or simply view device serial numbers and names to determine which devices are discovered on the link. You may also want to edit the name of one or more devices. These actions are all possible in *View/Edit Device Properties*.

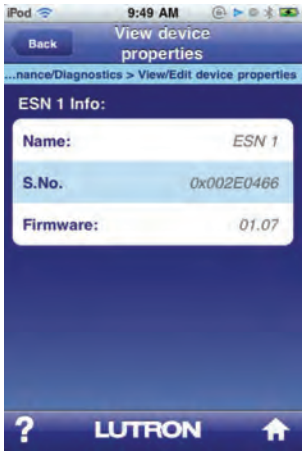
To use this feature, start at the *Home* screen and navigate to *Maintenance/Diagnostics*. From there, navigate to *View/Edit Device Properties*. You will see a screen similar to the one shown at right.



Use View/Edit Device Properties

From this screen, you can scroll through the list of devices currently present and responding on the QS link. Additionally, you can select a device and either identify it (using the *Identify* button at the bottom of the screen), edit its name (using the *Edit* button also at the bottom of the screen), or view its properties (using the *Next* button at the top-right portion of the screen). Devices will identify differently depending on the type of device selected. For example, ESN devices will identify by flashing all of the lights that they control. Other device types may flash their LEDs in various different patterns.

If you use the *Next* button or the arrow that appears on the right side of the selected row, you will be taken to a screen that displays the properties for the selected device. This screen will look similar to the screen shown at right. From here, you can view various properties.



Change the Name of a Device

From the list of devices, you can select a device and press the *Edit* button at the bottom of the screen. Alternatively, when you are viewing the properties of a device, you can select the *Name* property to edit the name (just as you could from the previous screen). If you are viewing a QSM, you can edit the name of a connected sensor by selecting the sensor and pressing *Edit Name*.

Back Up/Restore/Clone Device Data

After you have successfully programmed an ESN, you should consider making a backup of the ESN data. This is useful in the event that future changes prove to be undesirable, or in the event that the ESN device needs to be replaced due to a hardware failure. Additionally, you should back up ESN data before performing any sort of a firmware update or making any other major changes to the system.

Back Up Device Data

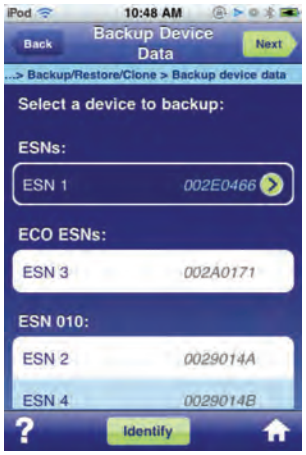
To use this feature, start at the *Home* screen and navigate to *Maintenance/Diagnostics*. From there, navigate to *Backup/Restore/Clone*. You will see a screen similar to the one shown at right.

From this screen, you can back up device data (using the first option listed) and you can also manage existing backup files that are stored on the device (using the last option listed).

Note that backup files will be stored on the *iPod touch* or *iPhone* device that you are using when the backup file is generated. There is a method for moving these files from the device to a computer (and vice-versa, if desired) detailed in the *Copy Files To/From the Handheld Device* entry, p90.

Back Up Data for an ESN

To back up the data for a given ESN device, touch the *Backup Device Data* button. You will see a screen similar to the one shown at right.



Once you have selected the ESN that you would like to back up, touch the *Next* button or the arrow that appears in the row for the selected device. You will be asked to confirm your selection and then the backup process will begin. Please note that, depending on the amount of data and programming stored, the backup process may take several minutes. Once the backup process is complete, you will be prompted to give the backup file a name. A default name will be suggested, which consists of the ESN device name along with a date/time stamp value.

To export a backup file, please refer to the section titled *Copy Files To/From the Handheld Device* entry, p90.

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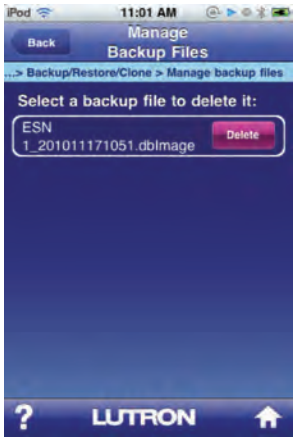
Back Up/Restore/Clone Troubleshooting

Q – The application says that the ESN failed to back up the device. What does this mean?

A – This could happen for several reasons. Occasionally, the actual name of the file that was input will cause a problem, so first, try again using the default name for your backup file. If this still does not work then there may be communication issues on the link that interrupt the backup process.
Alternatively, follow the *Basic Troubleshooting* steps in the *Troubleshooting* section on p93, to refresh the devices and try again.

View and Delete Backup Files

Once you have backed up ESN data, you can view and manage the existing backup files on the device using the *Manage Backup Files* feature mentioned earlier. Selecting this option from the main *Backup/Restore/Clone* screen will bring up a screen similar to the one shown at right.



From this screen, you can view the backup files that are currently stored in the application. You can also delete backup files that you no longer need by selecting the file and touching the *Delete* button that appears in the row.

Restore Device Data

If you have a backup file that contains the data for a particular ESN in your system, you can restore the file to the ESN. This is useful if an ESN device had a hardware failure and needed to be replaced; you can restore the backup to the new (replacement) ESN so that your system is restored to its previous functional state without the need for reconfiguration. Note that any devices (such as QS keypads or Pico® wireless controls) that were programmed to control the ESN will need to be re-programmed once the *Restore* process is complete. Other data, however, will be fully restored (including ballast addresses).

When possible, you should ensure that a replacement device is updated so that its firmware version matches the firmware that was loaded onto the device that was replaced. Restoring a backup file from an ESN with newer firmware onto an ESN with older firmware will not work. Restoring a backup file from an ESN with older firmware onto an ESN with newer firmware is supported; the data in the backup file will be converted to the new version as part of the restore process. The steps for updating firmware are discussed in the *Update Device Firmware* section beginning on p86.

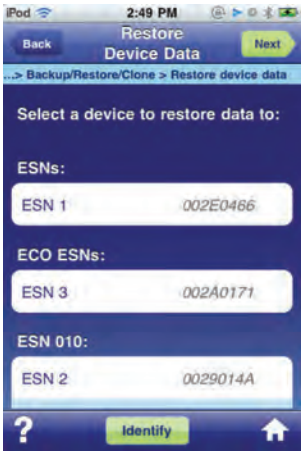
Restore ESN Data From a Backup File

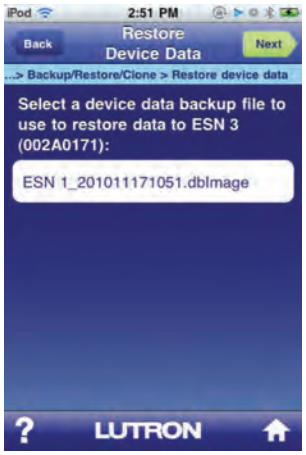
To use this feature, start at the *Home* screen and navigate to *Maintenance/Diagnostics*. From there, navigate to *Backup/Restore/Clone*. You will see a screen similar to the one shown at the top near right.

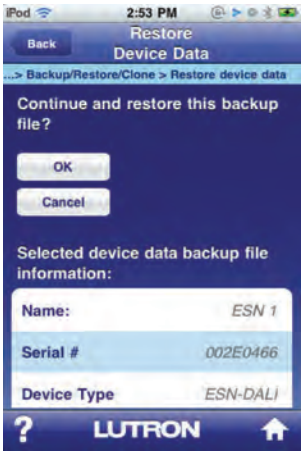
From this screen, you can restore device data (using the second option listed). Touch the *Restore Device Data* button to proceed. You will see a screen (shown at the top far right) containing a list of the ESN devices currently connected to the system.

Select the ESN to which you would like to restore the backup file. Note that you will be over-writing the programming that is currently in place on this ESN with the programming present in the backup file that you choose. Once you have selected an ESN, touch *Next* to continue. You should see a screen similar to the one shown at the bottom near right.

From this screen, you can select the backup file that you would like to restore. Select the desired file and touch *Next* to continue. You will then see a screen similar to the one shown at the bottom far right.







View Backup File Information

On this screen, you can view some information about the file that you have selected, such as the date and time that the backup was made (scroll down for this information), as well as the name and serial number of the ESN that was backed up. If you are ready to proceed and restore the selected file to the ESN indicated earlier, touch the *OK* button. You will be asked to confirm the selection one final time and then the restore process will begin; it may take several minutes to complete the process.

Note that once the restore is complete, the application will restart and you will need to reconnect.

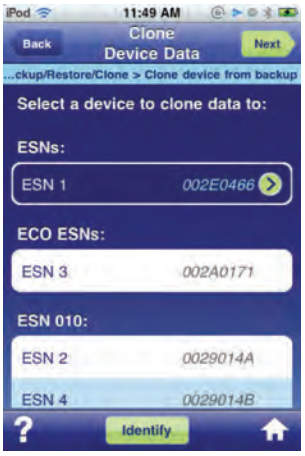
Clone Device From Backup

There are some situations when the ability to clone data from one ESN to another can be useful during system configuration. In the clone process, a backup file taken from one ESN can be restored to other ESN devices that have similar configurations to the original ESN. For example, if you have a series of classrooms and one ESN controls the lighting in each classroom, and the zones, daylighting rows, scene levels, and occupancy settings are identical or nearly identical from room to room, the ability to clone one classroom (i.e., one ESN) and copy this data to other ESN devices can save a lot of time. Unlike a restore process, cloning will not copy ballast addresses. Therefore, after a clone is performed, ballasts will need to be addressed and then associated to areas, zones, and daylighting rows. Also, cloning will not copy device programming (such as keypad programming) or sensor assignment. Cloning is useful to reduce the time spent creating areas and zones and specifying scene names, scene level assignments, and occupancy settings; these are the items that are cloned.

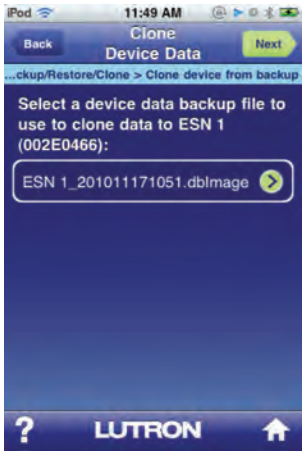
Clone ESN Data From one ESN to Another

To use this feature, start at the *Home* screen and navigate to *Maintenance/Diagnostics*. From there, navigate to *Backup/Restore/Clone*. You will see a screen similar to the one shown at the top near right.

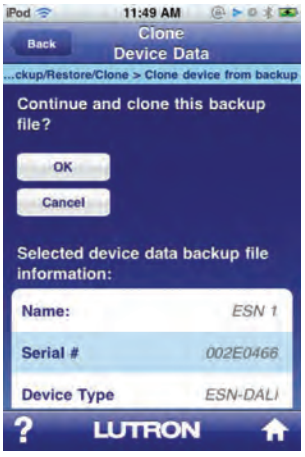
From this screen, you can clone device data to other ESN devices from a backup file (using the third option listed). You will first have to back up the ESN that is already configured—this is the device that you want to make copies of. See the *Back Up Device Data* entry, p81, for more information about making device backups. Touch the *Clone Device from Backup* button to continue; you should see a screen similar to the one shown at the top far right.



On this screen you will see a list of the ESN devices that are currently available in the system. Select the device that you would like to copy *to* using the clone feature. Again, note that you should already have a backup file of the ESN that you are copying data *from*. Now, you are selecting the ESN that you would like to copy data *to*. Once you select an ESN and touch *Next*, you should see a screen similar to the one shown at the bottom near right.



On this screen, you will see a list of the available backup files that are currently located within the application. Select the backup file that you would like to clone to the ESN that you selected on the previous screen. When you are ready, touch *Next* to continue—you should now see a screen similar to the one shown at the bottom far right.



View Backup File Information

On this screen, you can view information about the backup file that you selected, such as the name, serial number, and device type of the ESN from which it was taken, as well as the date and time that the backup was made. If you are ready to proceed with the clone process, touch *OK* to begin. You will be asked to confirm the selection one final time and then the clone process will begin; it may take several minutes to complete the process depending on how much data is being copied. Note that once the clone process is complete, the application will restart and you will need to reconnect. This must be done because new data has been cloned onto an ESN in the system.

Update Device Firmware

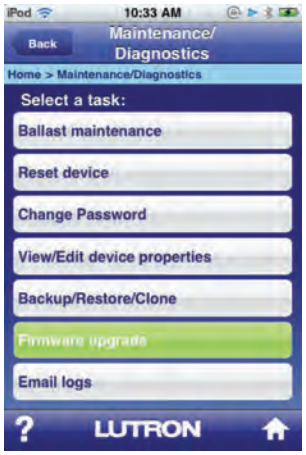
There may be instances in which it becomes necessary to update the firmware on one or more of the devices in your system. "Firmware" simply means the software that is running on the various devices (e.g., keypads, ESN units, QSM units). For example, you may need to update the firmware on the keypads in your system to enable a new feature that was not available in previous keypad firmware versions. Or, you might want to replace an ESN where the new (replacement) ESN has a firmware version that is different from the other ESNs in your system.

CAUTION: You should *never* update firmware unless you have been directed to do so by Lutron® personnel. Updating firmware is an advanced feature and attempting to perform this operation without the correct information or for the wrong reasons can adversely affect the performance of your system.

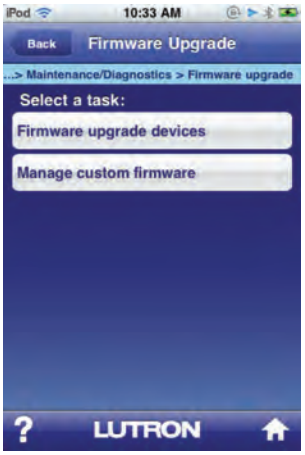
If you are planning to update device firmware on an ESN, you should first back up the data for the ESN in question in case you encounter problems with the update process.

Updating Firmware on One or More Devices

In order to use this feature, navigate to *Maintenance/ Diagnostics* and select the *Firmware Upgrade* option, as shown at near right.



Once you have selected this option, you should see a screen similar to the one shown at far right.



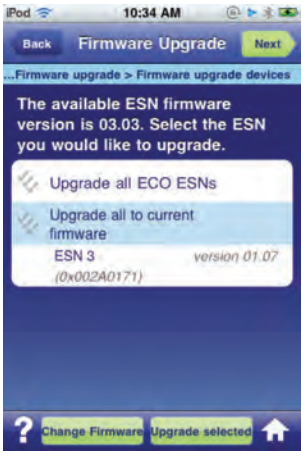
There are two options on this screen. The first option, *Firmware Upgrade Devices*, allows you to select one or more devices in your system of a given type and update the firmware of those devices. This will be discussed in more detail below. The second option, *Manage Custom Firmware*, allows you to view a list of additional firmware files that have been added to your device.

Import Custom Firmware Files

Additional firmware files can be added to the device using *iTunes*; the procedure for doing this is described in detail above, in the *Copy Files To/From the Handheld Device* entry, p90. Although this section relates to copying backup files, the same procedure is used for copying firmware files (.S19 files) as well as log files. Once one or more firmware files have been transferred to the device from *iTunes*, you can use the *Manage Custom Firmware* screens to view a list of these additional firmware files. You can also delete firmware files that you no longer want on the device. Alternatively, the files can be removed using the *iTunes* file transfer method.

To update device firmware, you should select the first option on the *Firmware Upgrade* screen. Once you select this option, you will see a screen similar to the one shown at near right.

On this screen, select the type of device that you would like to update. You can update only one type of device at a time. However, you can update multiple devices in the system of the same type at the same time; simply select the device type that you would like to update in order to continue. You will be taken to a screen similar to the one shown at far right.



In this example, ECO ESN has been selected as the device type. The currently selected firmware file for this device type is version 03.03, as it says in the text toward the top of the screen. Once you have selected the firmware that you would like to use, there are three options to updating firmware.

Change the Currently Selected Firmware

If you need to select a different firmware file (perhaps one that was loaded onto the device using the *iTunes* file transfer feature), you can use the *Change Firmware* button in the bottom-left portion of the screen to select alternate firmware.

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Update all ECO ESNs

This option updates all of the devices of the selected type (in this case, ECO ESNs) regardless of what their current firmware revision is. In other words, even devices that are already reported to be at the selected firmware level will be updated. In short, every single device of the matching type will be updated.

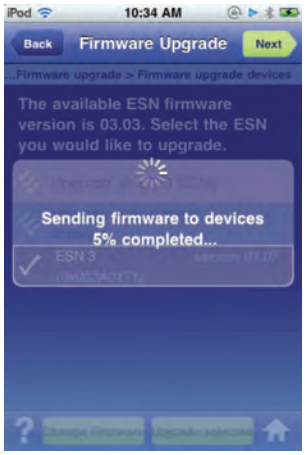
Update all to Current Firmware

This option updates only devices (of the selected type, which is ECO ESN, in this case) whose firmware revision does not match the firmware that is selected. Devices that are deemed to already be up-to-date will not be updated.

Select Individual Drivers

The third option is to select individual devices to update. In the example screen on the previous page, there is only one device of the selected type (ECO ESN) on the link and thus, there is only one additional row below the first two options. This row tells us the device name (in this example, *ESN 3*), the device serial number (in this example, *0x002A0171*), as well as the current firmware revision (in this example, *version 1.07*). If multiple ESN ECOs were present on the system, they would appear below *ESN 3*. Select as many devices as desired.

Once you have selected an option, touch the *Upgrade Selected* button in the lower-right portion of the screen, or touch the *Next* button in the top-right. After some confirmation boxes appear, the firmware update process should begin and you will see a screen similar to the one shown at right.



Once the update is complete, navigate to *Maintenance/ Diagnostics*, then *View/Edit* device properties to view the devices that you updated and confirm that their firmware revision has changed to the desired version.

Note that if you downgrade ESN firmware (i.e., update to an older version of ESN firmware), the ESN will need to be fully re-programmed. Also note that if you update the ESN to which you are directly connected (i.e., the ESN to which your wireless router is connected), the application will need to be reloaded at the end of the firmware update process and when the update is complete, you will be returned to the first screen.

Firmware Update Troubleshooting

Q – I was updating the firmware of multiple devices and one of the devices failed during the update. Now the application doesn't detect the device so I cannot connect to it.

A – If there is an interruption during the firmware update process, the device that was processing the update will be stuck in *Boot* mode. More information about *Boot* mode can be found in the specific device documentation. There are two different ways to take a device out of *Boot* mode:

1. Navigate to *Maintenance/Diagnostics* > *Firmware Upgrade* > *Firmware Upgrade Devices*, and select the type of the device in *Boot* mode. The device will appear in a separate list under the header *Devices in Boot Mode*.
2. Use a Lutron® NWK device to run a firmware update through a PC.

If neither of the above steps fixes the problem, please contact Technical Support.

Manage Handheld Device Data

Each application on your device can store files in a location accessible through the application or through the *Apple iTunes* software. Follow the instructions below to import or extract database files, log files, or firmware.

Copy Files To/From the Handheld Device

In order to copy any files to or from the application, you will need a computer running the *Apple iTunes* software (version 9.1 or later) and your *iPhone* or *iPod touch* will need to be running iOS version 4.0 or later. *Ipad* devices need to be running iOS software version 3.2 or later.

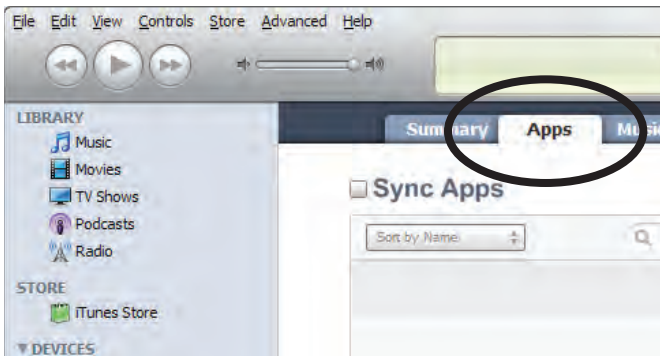
Note: These same steps can be used to copy firmware files (.S19), database files (.dbimage), and log files (.txt) to and from the application.

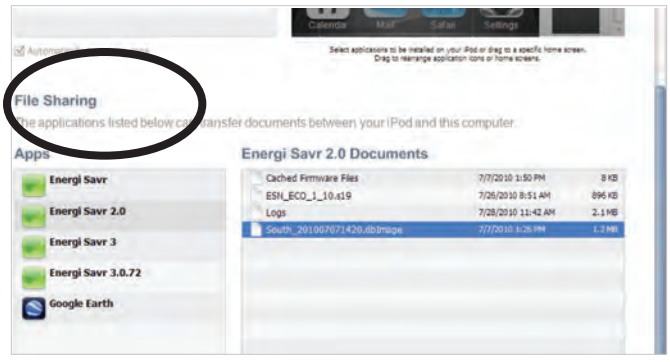
Perform the following steps:

1. Connect the *iPhone/iPod touch* device to the computer using the USB cable that came with the device.
2. If *iTunes* does not launch automatically, start *iTunes* and allow it to load.
3. Select your device from the *Devices* section of *iTunes* (in the menu on the left of the window)
4. Select the *Apps* tab.
5. Scroll down to the bottom of the page. You should see a *File Sharing* section. If you do not see this, you are not using a recent enough version of *iTunes* and/or the iOS software, or you do not have any applications that support the file-sharing feature. Under the *File Sharing* section, you will find a list of applications installed on your device that support the file-sharing feature. Select the appropriate version of the Energi Savr application to view a list of the files currently stored on your device that are associated with this application.
6. You can drag and drop files you wish to export from *iTunes* onto your computer's desktop or you can select the desired files and use the *Save to…* button in *iTunes* to save the files to a desired location.

   OR

7. If you want to copy files back onto your device, you can drag and drop these files from your computer's desktop onto the *Documents* list in *iTunes* or you can use the *Add…* button in *iTunes* to locate the desired file.





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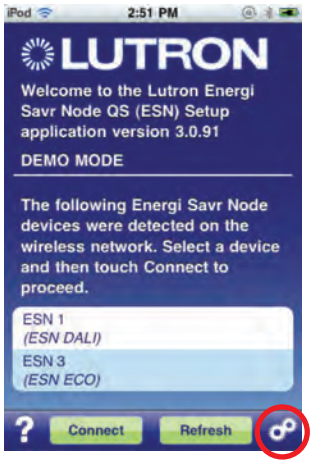
Extract Log Files

If you encounter problems with the system while using the application, you may be asked to send log files from the application to Lutron® Technical Support for troubleshooting purposes. There are three ways to accomplish this. One method is to use the *iTunes* file transfer procedure to copy the log files (.txt files) onto a computer and then send them to Lutron® Technical Support using conventional email. See the *Copy Files To/From the Handheld Device* entry, p90. Although this section relates to copying backup files, the same procedure is used for copying firmware files and log files (.txt).

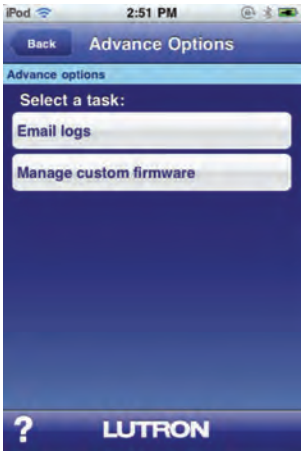
The other two methods are similar and require the *iPod touch*, *iPhone*, or *iPad* that you are using to have an email account configured on the device. Using web-based email will *not* work. For help with setting up a Hotmail, Gmail, or other email account on the device, please visit the corresponding email service's website for detailed instructions.

Email Log Files from Inside The Application

Once you have configured email on the device and can successfully send and receive emails using the built-in email client that runs on the device, you can continue. There are two places from which log files can be attached to an email from within the application. The first of these does not require you to be connected to an ESN system. When you initially run the application, a screen loads and the application attempts to detect available systems. Even if none are found, the application remains on that screen and you can use the small gears icon in the very lower-right portion of the screen (as shown at near right).



When you select the gears icon, you will see a screen similar to the one shown at far right.



From this screen, you can touch the *Email Logs* option, which will create an email and attach log files from up to 15 of the most recent sessions of the application. In other words, only the last 15 times that the application has been used will be captured in these log files. Therefore, if you encounter issues with the application, it is advisable that you create this email as soon as possible before using the application much further. Otherwise, if you continue to use the application too many times before exercising the *Email logs* option, the log information that covers the issues you encountered may be lost.

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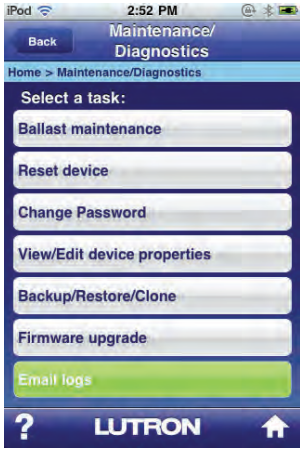
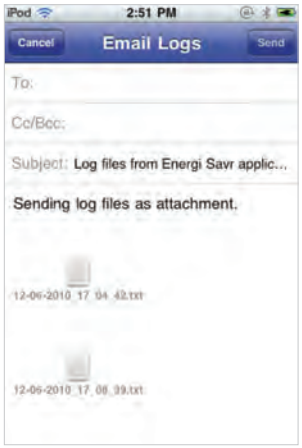
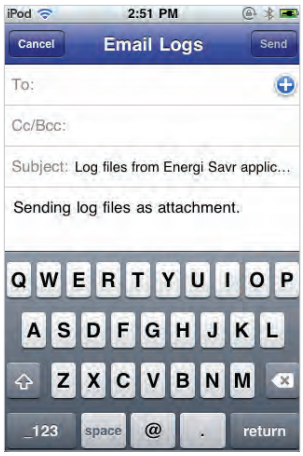
There is another way to gain access to the *Email logs* option—you can navigate to *Maintenance/Diagnostics* from within the application and activate the *Email Logs* option, as shown at right.



Whether you use the gears icon or the option shown above right, the result is the same—an email is created with the fifteen most recent log files attached. When you select *Email Logs* you should see a screen similar to the one shown at right.



This screen represents an email. Simply touch the *To:* portion at the top of the screen to fill in the email address to which you'd like to send the log file attachments. A keyboard will appear enabling you to type in the email address, as shown at right.



Simply enter the email address and then touch *Send* in the top-right portion of the screen. The email will be sent and you will be returned to the application.

Note that you do *not* need to be connected to the Internet in order to perform the steps above. If you are not currently connected to the Internet, the email will be sent to your outbox and will be transmitted later when you are able to connect to an Internet-enabled wireless network; simply access the email client at that time and check your outbox to verify that the message is sent.

Extract Log Files Using iTunes

It is also possible to extract the log files using the same technique for importing/exporting files from the application discussed in the *Copy Files To/From the Handheld Device* entry, p90. The files names correspond to the date and time when the file was created.

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Troubleshooting

Basic Troubleshooting

If any aspect of your system isn't responding properly, please follow the steps below to try to fix the problem.

Note: After each individual step, try the process again to see if the problem is fixed.

If these steps fix the problem temporarily but the same symptoms occur repeatedly, please contact Technical Support for detailed assistance.

****BEFORE ANY TROUBLESHOOTING****

Backup each ESN device: Navigate to *Maintenance/Diagnostics > Backup/Restore/ Clone > Backup Device Data* and proceed with backing up each ESN. This process creates a file that can restore the programming of the system if anything is lost.

Note: ESN 0-10 and ESN Switching do not support Backup/Restore before version 5.XX

Record the error state: For later reference and reporting purposes please record the issue that you are currently seeing. If there is an alert box on the screen record all of the text displayed.

****BEFORE ANY TROUBLESHOOTING****

1. Restart the Application

Fully terminate the application by pushing the handheld's *Home* button located on the front of the device.

Note: If you are using a multi-tasking device, the application is not fully-closed, only minimized.

To determine if you are using a multi-tasking device: While you are looking at the main screen containing the application icons, double-press the *Home* button.

A horizontal bar will appear at the bottom of the screen as shown in the image on the right, indicating which applications are currently running in the background.

If no horizontal bar appears, your device does not support multi-tasking and the application is already terminated.

To close a "backgrounded" application, touch and hold the *Energi Savr* icon in the list, and then touch the small red minus sign that appears in the top left corner of that icon. Press the *Home* button to close the horizontal bar and then re-launch the *Energi Savr* App again and retry the original process.

2. Press the *Reset* Button on Each ESN

Press and hold the *Reset* button on each connected ESN for 3 seconds. Wait a minute for the ESN to power back on and try again.

3. Power-Cycle the Router

Unplug the wireless router from the power outlet and wait 30 seconds, then plug the router back in and try again.

4. Power-Cycle the Handheld Device

Press and hold the *Lock* button located on the top of the handheld device. Drag the red box that appears to the right to power-down the device. Once the screen becomes completely dark, press and hold the same *Lock* button to restart the device. Once the system is finished rebooting, connect to the wireless router, open *Energi Savr* and try again.

5. Power-Cycle All Devices

Turn off the power to all of the ESNs and ballasts. Wait approximately 30 seconds then restore power and try again.

6. Contact Technical Support

Please contact 24/7 Lutron Technical Support at 1.800.523.9466.

Notes

Notes

Worldwide Technical and Sales Assistance

If you have questions concerning the installation or operation of this product, call the Lutron® Technical Support Center.

Please provide the exact model number when calling.
Model number can be found on the product packaging.

U.S.A., Canada, and the Caribbean:	1.800.523.9466
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